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The June number of the OPHTHALMIC RECORD will contain (among others) an original paper by Dr. Jackson, "A Modification of the Sight-Hole of the Ophthalmoscopic Mirror;" one by Dr. J. W. Bullard, "Malignant Growths of the Orbit;" one by Dr. Francis Valk, "Curvature of the Cornea in reference to the Refractive Condition of the Dioptric Apparatus in the Two Principal Meridians." There will also appear reviews of the most recent contributions to Ophthalmology published here and abroad, book notices, editorials by prominent Ophthalmologists, society reports and miscellaneous items of interest.

The RECORD particularly desires short, practical papers on any subject connected with Ophthalmology. These will be published at as early a date as possible. It is understood that, unless otherwise arranged, original articles when accepted are contributed to the RECORD exclusively. Illustrative cuts will be made at the expense of the journal and proofs for correction will be sent to authors when desired. Reprints with covers are furnished at cost. One hundred of these will be presented to authors *gratis* when a request for them is written on the original manuscript. The RECORD will be issued monthly and each number will contain about 54 pages of reading matter.

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TABLE OF CONTENTS.

I. ORIGINAL ARTICLES.

1. A Case of Optic Nerve Atrophy Treated by Inhalations of Nitrite of Amyl, *by* CHARLES W. KOLLOCK, M. D., *Philadelphia*. (*Illustrated*), - - - - - - - - - - 217

2. On Subjective Visual Sensations, *by* PETER D. KEYSER, M. D , *Philadelphia*, - - - - - - - - - 220

3. Examinations by the Tropometer and some of the Phenomena Observed, *by* GEORGE T. STEVENS, M. D., *New York*, (*Illustrated*). - - - - - - - - - 223

4. A Word of Caution as to the Shape of the Presbyopic Segment in Cement Bifocal Lenses, *by* GEORGE M. GOULD, M. D., *Philadelphia*, - - - - - - - - - 229

II. CORRESPONDENCE.

1. Western Ophthalmological, Otological, Laryngological and Rhinological Association, - - - - - - - 230

2. The Globe Optical Company, - - - - - - - 230

3. The Indubitable Value of Careful Refraction, - - - 231

III. TRANSLATION.

1. Cataract Discission, ELSCHNIG ANTON, *Vienna*, - - - 233

IV. REVIEW.

1. Hysterical Monocular Amblyopia coexisting with Normal Vision, Dr. MORTON PRINCE, - - - - - - - 235

V. ABSTRACT.

1. Abstracts of Articles pertaining to the Ocular Nervous Apparatus, *by* H. GIFFORD, M D., *Omaha*, - - - - - - 238

VI. REPORTS OF SOCIETIES.

1. Chicago Ophthalmological and Otological Society, - - - 246

2. Section of Ophthalmology, *College of Physicians. Philadelphia*, 247

3. Western Ophthalmological, Otological, Laryngological and Rhinological Society, - - - - - - - - 251

VII. EDITORIALS.

1. Concerning the Section of the American Medical Association and Other Society Meetings, - - - - - - - 267

2. Medical Society Programs, - - - - - - - 268

3. The Use of the Term Heterophoria, - - - - - 268

4. The Increase of Errors of Refraction, - - - - 269

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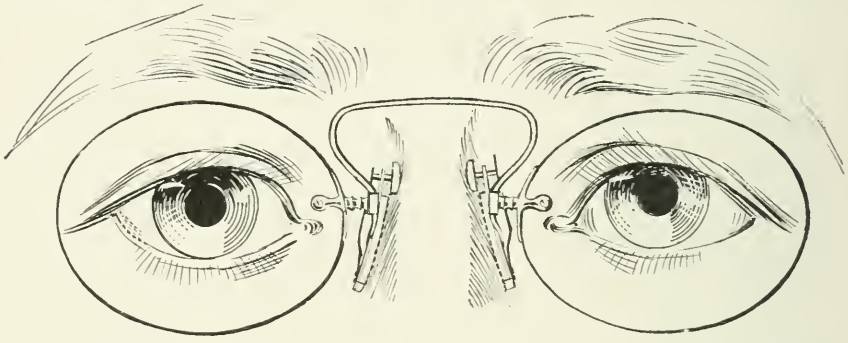

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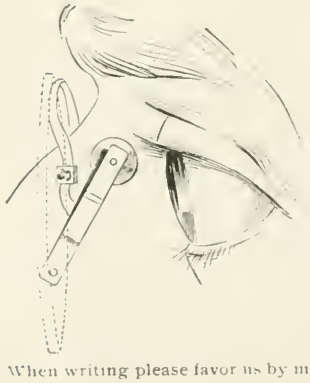

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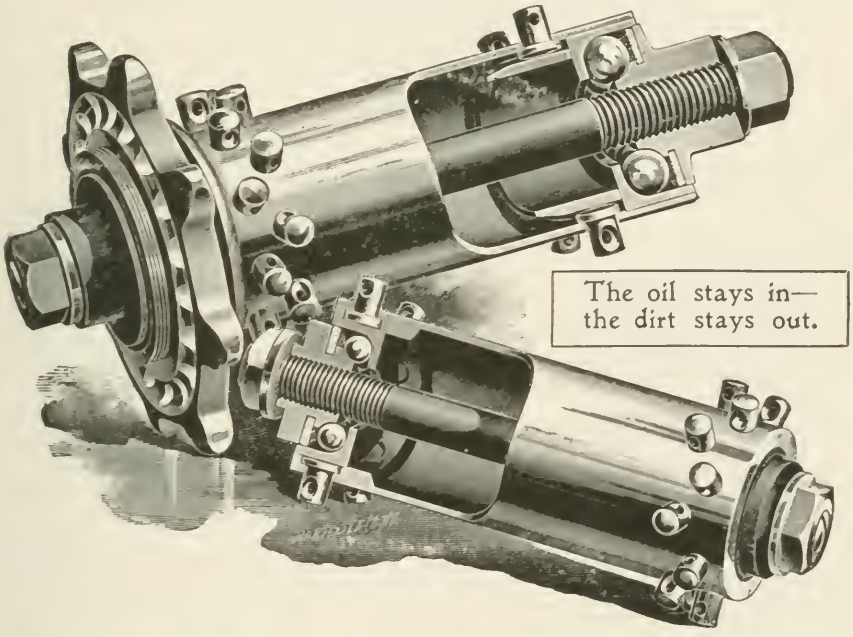

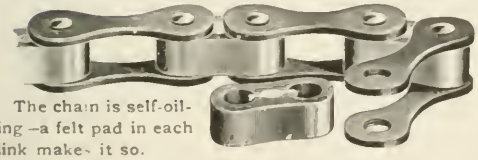

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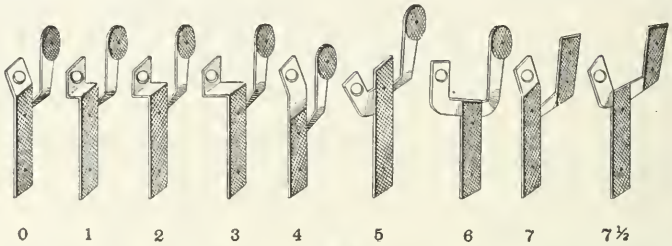

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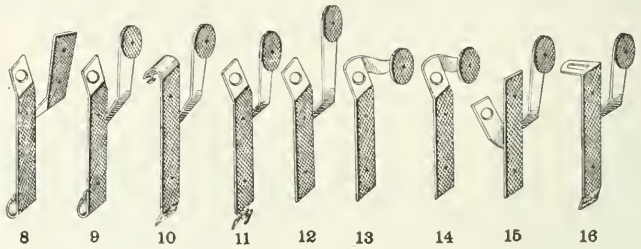

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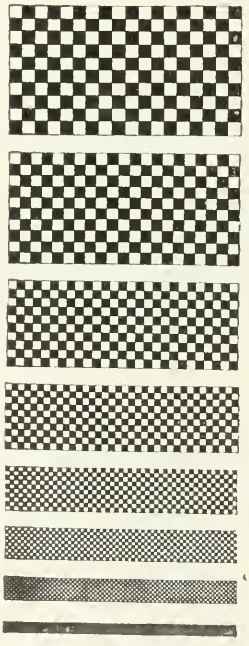

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THE

OPHTHALMIC RECORD

VOL. VI. CHICAGO, MAY, 1897. No. 5, NEW SERIES.

ORIGINAL ARTICLES.

A CASE OF OPTIC NERVE ATROPHY TREATED BY INHALATIONS OF NITRITE OF AMYL.

By CHARLES W. KOLLOCK, M. D.,
Charleston, S. C.

ILLUSTRATED

The following case is of interest chiefly on account of the marked improvement following treatment.

On the 10th day of July, 1896, Wm. M. White, sixty-three years of age, consulted me on account of blurring of the vision of the right eye, which, he said, had been noticed for a month and was gradully increasing. He was a strong, large-framed, muscular Scotchman and in good health. He had used tobacco constantly for many years and was a very moderate drinker of whiskey. The heart was in good condition and the blood vessels were no harder than would be expected in one of his age. Externally the eyes were normal and similar in appearance and the pupillary reflexes were good. Right V= $\frac{15}{cc}$; with + 2.50 D. $\frac{15}{LXX}$ —.Left V= $\frac{15}{c}$; with + 2 D. $\frac{15}{XV}$, with + 4 D. the left read Jaeger No 1 with ease. The ophthalmoscope showed the right disk slightly hazy, a little swollen and with the veins somewhat engorged. The specific gravity of the urine, which was normal in appearance and quantity, was at the first examination 1010 but within a day or two became 1020 and has remained so. No albumen or sugar has been discovered at any time. The field of vision was concentrically contracted, but color perception was good. There was no scotoma. He was given ten grains of iodide of potash before each meal and this dose was gradually increased until he took sixty grains a day when the stomach was upset. In the meantime strychnine (sulphate) was also prescribed, beginning with one-twentieth of a grain and gradually increasing until he took one-tenth of a grain three times during the day. The vision did not improve but slowly diminished until he could barely see $\frac{15}{cc}$ with + 2.50 D. The disk became whiter and more distinct and the arteries

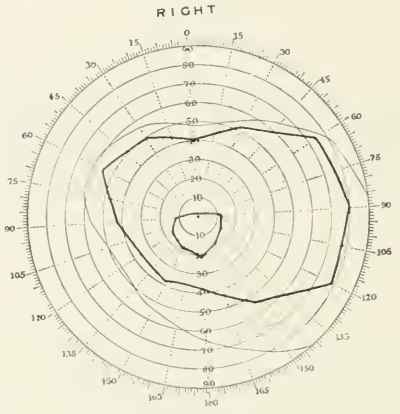

Fig. 1.

August 11, 1896.

contracted more visibly. It should be stated that tobacco and alcohol had been interdicted and given up from the first. As the vision continued to fail and the nerve to become whiter it was decided to try the effect of nitrite of amyl. On the 26th of September, more than two months after his first visit, he was allowed to inhale the vapor of a few drops of the nitrite that had been placed upon absorbent cotton. Before inhalation vision with + 2.50, D. was $\frac{15}{cc}$. The face immediately became suffused and the ophthalmoscope showed the arteries of the disk larger, while the small branches, before invisible or nearly so, were easily seen. The vision was tested within a few minutes after inhalation and found to be

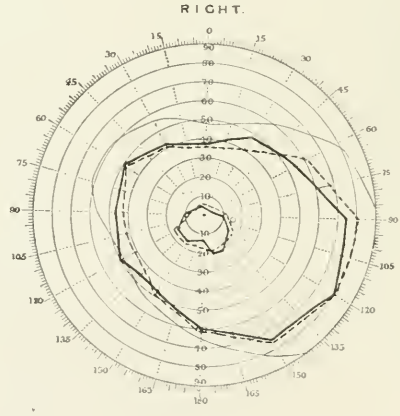

Fig. 2.

September 29th, 1896. Full black lines (white and red) taken before inhalation. Dotted lines after inhalation.

$\frac{15}{XXX}$, with difficulty. Twenty minutes later the retinal vessels had returned to their former condition, but the vision was, if anything, a trifle clearer. September 28th vision was rather better than $\frac{15}{CC}$. Four minutes after inhalation vision became $\frac{15}{LXX}$ to $\frac{15}{L}$ and ten minutes later $\frac{15}{XXX}$ (?), but did not improve beyond this.

September 29th, before inhalation one letter of $\frac{15}{XXX}$, afterwards better. 30th, before inhalation, $\frac{15}{XL}$ and $\frac{15}{XXX}$ (?), after $\frac{15}{XXX}$.

October 2nd, before inhalation $\frac{15}{XXX}$ (?), one letter of $\frac{15}{XX}$.

The inhalations were continued daily until the heart symptoms became so disagreeable that it was thought best to discontinue them for a time and especially as the vision remained at $\frac{15}{XXX}$. He was then advised to take up the strychnine which had in the meantime been left off. The vision remains at $\frac{15}{XXX}$, the disk is white but the atrophy has not increased nor have the bloodvessels become smaller. The accompaning charts show the field taken at three different dates. There was no scotoma but a concentric narrowing of the field which did not change materially after the inhalation of the drug.

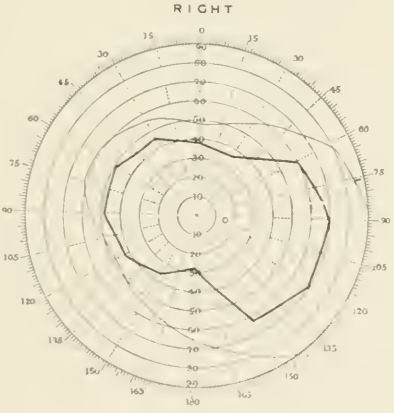

Fig. 3.

January, 1897. Taken sometime after inhalations had been given up. V= $\frac{15}{XXX}$? with + 2.50 D.

It is a well known fact that nitrite amyl causes a rapid improvement in vision in cases of tobacco poisoning, but the improvement is followed by almost as rapid diminution. This case does not seem to have been due to tobacco and alcohol (though both were used) because but one eye was affected and there was no central scotoma or red blindnes. Even if tobacco and alcohol were the causes the rapid and permanent improvement after the inhalation of the nitrite of amyl, when no improvement (but gradual diminution) of vision had followed the use of iodide of potash and strychnine is exceedingly interesting.

ON SUBJECTIVE VISUAL SENSATIONS.

By PETER D. KEYSER, M. D.,

Philadelphia, Pa.

Being much interested in the article of Dr. Alex. W. Stirling on certain subjective visual sensations, read before the Section on Ophthalmology at the last meeting of the American Medical Association, and to show the correctness of the remarks of Dr. C. W. Kollock as to the cause of such sensations being in many cases indigestion or some disturbance in the digestive tract, I present a history of my own case, as well as of some patients, who consulted me on experiencing such sensations. As will be seen, my own case occurred early in life, before I had entered the profession, but was so well marked that I made notes thereof at the time and have kept them in mind ever since.

In July 1858 I went from Germany to Zurich to attend the annual Swiss Saengerfest, arriving in the evening. The next morning I went about 8 o'clock into the dining room for breakfast (or rather coffee, as at that time of the morning only coffee and bread are taken; breakfast —dejeuner—being eaten at 12 to 1 o'clock), and found on the table dishes of the most beautiful honey I had ever seen, and so tempting that I ate thereof with the bread and butter as I drank my coffee. After which I went out to see the arrival of the singing societies.

At about 9:30 to 10 o'clock a singular appearance came over my vision: every body and thing was divided vertically, so that but one half of the object was really seen. The right side of the person or object looked clear and distinct, while that of the left was very indistinct, as in shadow and distant. The line of demarcation was so marked that the left or indistinct side appeared cut off and thrown back like a second likeness of a ghostly vision. There were no discolorations or colored lines or rays. Soon after the development of the hemiopia the eye balls began to ache and there came a severe pain on the top of the head under each parietal bone, about at the line of attachment to the frontal, having the feeling as if a blow from a hammer or hard object had been received at each spot.

I called the attention of my brother who was with me, to the fact of these sensations and my suffering and concluded that I was bilious, and as I could not go around any more, went to a pharmacy, took some anti-bilious pills and then returned to my room in the hotel, where sleep was enjoyed for two or three hours. On awaking my vision and eyes were all right, but there was still some soreness in

the top of the head which passed away by evening. The next morning honey was again eaten with the bread and coffee, and an attack exactly like the previous day came on at about the same time, and I was obliged to sleep it off. I now came to the conclusion that it was the honey that caused the trouble, so on the next day ate none and there was no return of either visual disturbance or pain. To be certain it was the honey it was again eaten on the fourth day and again the same attack occurred at the same lapse of time after the meal. From that time on honey was not tasted and no trouble took place until one year after I thoughtlessly ate some and the very same symptoms came on in the usual time. Remembering the experience in Zurich, no more was eaten until two years after while at home in Philadelphia in my father's house, honey was eaten on hot cakes in the evening, and an attack of the same character and symtoms came on in about the same space of time, compelling me to go to bed and give up an engagement made for that evening. Since that time honey or anything with honey in it has been completely eschewed and there has never been another attack or any symptom in any way resembling it.

I did not know enough about ophthalmology at that time to have my eyes examined as to any action on the pupils, but remember my mother saying at the last attack, "Why, how large your pupils are." At that time the study of ophthalmology was so unknown either by the profession or the laity that nothing was thought of this pupillary appearance. In all of these attacks the right field in both eyes was affected alike, and at no time was there any nausea felt.

January, 1876, a relative of mine, Mr. W., called to consult me about a visual disturbance he had had the previous day. About an hour after he had eaten his breakfast he appeared to lose his vision. There was a cloud over everything and persons seemed to be off at a great distance. The lower part of an object was less visible than the upper. This lasted for about fifteen or twenty minutes when a severe attack of pain came in the stomach, almost doubling him up. Being at home at the time he took some hot water and whiskey which relieved him in a short while. After a sleep of an hour he awoke all right with his vision in its normal condition. On my inquiry as to what he had eaten at breakfast, I found that honey had been taken on some cakes. I informed him that the honey had disagreed with him, and he then remembered that when a boy it always gave him cramp colic. At the time of his coming to my office there was

nothing abnormal in the eyes, and the ophthalmoscope showed a normal fundus.

April 27th, 1882, Mrs. C., aet. 30, was brought to me at 2 P. M. with a history that about twenty minutes previously a peculiar dimness of vision had come over her. She said that there appeared a point or spot of blindness before each eye, while around the spot nothing was sharp and well defined as usual. The left half of the object was more distinct than the right. The ophthalmoscopic examination showed a perfectly normal fundus. The pupils were somewhat dilated and sluggish in action on stimulation by light. On looking at a card of 1 meter sized letters, she could make out the words on the left half of the card while the right was indistinct and with an oval blind spot in the upper and outer part. On examination of the eyes singly the same field was found. The lady was in perfect health and could give no reason or cause for the disturbance in vision. On questioning her as to what she had eaten for dinner, she told me nothing but roasted fresh pork and ordinary vegetables. I supposed it was the pork as there are many persons who can not eat such meat when cooked in a fresh state, and ordered her a brisk saline purge. By the next day she was all right again. The following week to test the fact I got her to eat some roast fresh pork again, which caused another similar attack, thus showing that the visual disturbance arose from indigestion.

My attention was again called to a case of subjective visual sensations in a female, aet. 24, which was found to be caused by eating fish, but as it was of the same character and symptoms as the above, I merely mention it.

Keeping these cases in view it shows the necessity of carefully examining into the diet and digestion of many cases of subjective visual sensations before a diagnosis of a brain lesion is thought of. The latter disease being of so much more serious character that great care should be taken before the announcement of such a diagnosis.

EXAMINATIONS BY THE TROPOMETER AND SOME OF THE PHENOMENA OBSERVED.

By GEORGE T. STEVENS, M. D.,
New York.

The daily use of the tropometer for more than two years has brought into strong light some interesting and important facts which could not have been clearly understood during the earlier period of these observations. Many of these extend into the field of physiology and even of anthropology and craniology and lead to new and practical views in each of these lines of science.

It is not, however, my purpose in this short article to introduce any discussion beyond an effort to place in a more concise and connected form than I have previously done the methods of examination by the tropometer and the meaning of some of the phenomena observed. The tropometer is designed to measure the various rotations of the eyes about the point known as the "center of rotation". While such measurements can be determined in every direction, vertical, horizontal or oblique, experience has shown that by far the most significant, in a great majority of cases, are the determinations of the rotationsin the vertical direction. This is in distinct variance with the formerly, and still generally, prevailing thought, that the question of restriction or of excess of rotations of the eyes is confined almost exclusively to the movements in the lateral directions.

Without entering upon any discussion of the point I shall proceed upon the proposition that, in general, the upward rotation affords the key to the other excursions and that it is therefore the center of interest in examinations of ocular movements about the center of rotation.

In order to arrive at results which can be regarded as valuable the strictest observance of certain conditions is peremptorily demanded and I trust that I may be pardoned if, in stating these conditions, I am obliged to go over some ground which has been already traversed. It will be necessary here to state in definite terms some of the procedures in examinations by the tropometer which have heretofore been suggested much less in detail.

Among the conditions essential in examining the various excursions are: the position of the head and its immobility; the adjustment of the instrument at the proper distance from the eye; its exact focus at that distance, and the necessary effort of the will on the part of the person under examination, to bring out the full and complete action of the muscles in the given direction.

In order to adjust the head in the required position and to maintain that adjustment during an examination, it is necessary that the instrument be placed neither too high nor too low. As those who are to be examined are not of the same height, either the tropometer should rest upon a table the height of which can be easily modified or it should be placed upon a rather high table and an adjustable stool, resembling the ordinary piano stool should be employed.

To adjust the position of the head: The tropometer is furnished with a head rest, connected with which are certain accessories (See Fig. 1).

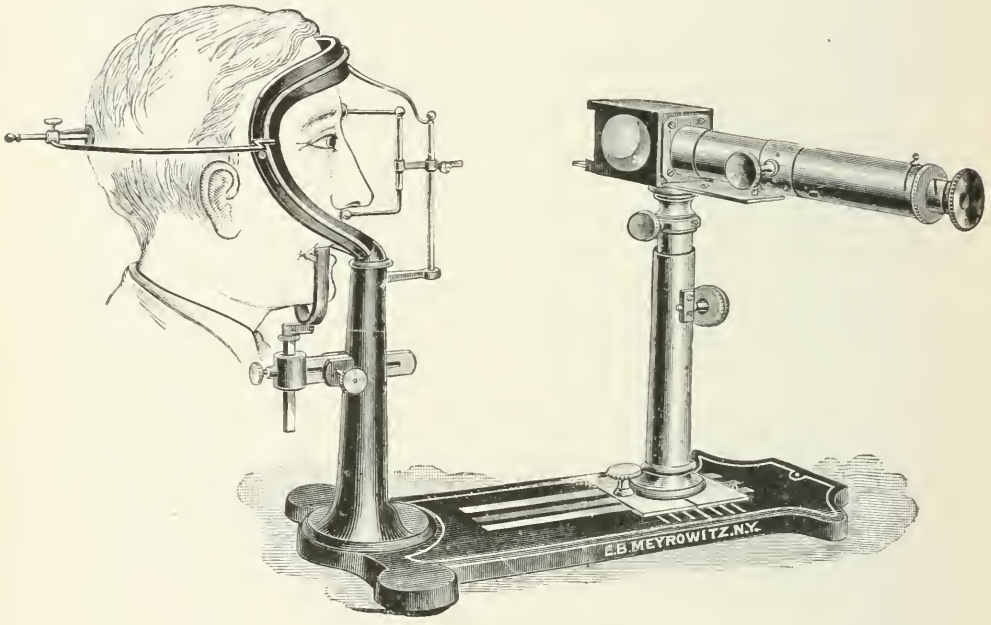

Fig. 1.

These are an exchangeable tooth rest and two buttons attached to a movable frame, the buttons being always situated in a vertical line relatively each to the other. The tooth rest is of wood, designed to be used but once and then destroyed. It slips into a bronze stirrup which is movable up and down, forward and back. The buttons can also be moved in these directions.

The person, the rotation of whose eyes is to be examined, seizes the strip of wood firmly between the teeth, the forehead is made to

press against the arc of the head rest and the frame work carrying the two buttons is brought forward until the upper button is pressed firmly against the elevation of bone which is found between the two superciliary ridges. By the back and forward action of the stirrup carrying the tooth rest the chin is now advanced or withdrawn until the lower button presses against the lip at the depression in the upper jaw just below the nose and above the roots of the teeth. The lower part of the face should be made to advance until the button presses against the lip to the extent of making the least practical difference between the distances from the two buttons to the bone beneath the skin. This demands very firm pressure of the lower button against the lip.

The head being thus brought into position, the telescope of the instrument is brought to the proper height and an approximate focus upon the cornea is arranged. Then the telescope is to be moved backward and forward, if required, until the cornea exactly fills the space between the heavy lines of the scale (Fig. 2). This can be best accomplished by turning the scale so that its main lines run vertically,

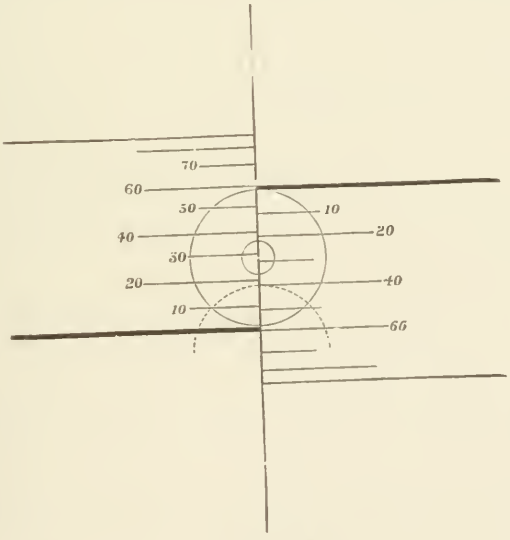

Fig. 2.

when it will be easy to adjust for the horizontal diameter of the cornea. While it is true that the horizontal and vertical meridians of the cornea

* The dotted line in the figure shows a position of the cornea as seen on the scale when the upward rotation is tested. In this case the upward (apparently downward) rotation is exactly at 40° of the scale.

are not always the same, especially in cases of astigmatism, this adjustment of the distance will, in the great majority of cases, be sufficiently accurate. The eye piece is to be turned until the scale is clearly seen and a renewal of the focusing of the telescope is made.

If it is proposed first to examine the rotation of the eye upwards, the scale is turned to permit the lines to run horizontally. The operator, with the thumb of the left hand on the upright branch of the head rest and the fingers of that hand pressed firmly against the back of the head of the observed, both for the prevention of any movement and for its detection if it occurs, uses the tip of the index finger of the right hand to depress very slightly the lower lid of the eye to be examined.

The lower (apparently upper) strong line of the scale is then, by means of the lifting screw, made to coincide exactly with the lower (apparently upper) border of the cornea while the examined eye is directed toward the small object in the center of the objective end of the telescope. Then, while the head is held in perfect immobility, the observed is directed to look upwards with all his force. To the beginner the movement may not be at first as free as possible but several repetitions will generally result in an effort which is approximately the limit.

As the eye moves up (apparently down) the observer reads on the scale the extent through which the border of the cornea passes (See Fig. 2).

In examining the downward rotation it is usually necessary to hold the upper lid slightly up by the end of the thumb, taking care to bring no pressure on the eye and to cause no resistance to its free movements.

In the lateral rotations it is essential to know that the median line of the head is at right angles to the direction of the telescope. To this end the teeth are fixed as nearly as possible midway between the upright branches of the stirrup, then the large adjustable hoop is attached to the head rest and the button is made to press against the scalp exactly over the apex of the occipital protuberance. (When this is absent the examiner must locate the central point to the best of his judgment.) Care is to be observed that this adjustment is not changed during the examination of lateral rotations.

The results of very careful observations have shown that the ability for upward rotation, in the exact vertical direction, of about 33° on the scale of the tropometer is the most favorable rotation in that direction and that the downward rotation corresponding is 50°. As

has been already remarked of all the movements the upward rotation is the key and a variation from the standard is most significant.

In the lateral directions, a nasal rotation of 50° and an outward rotation of nearly the same extent may be regarded as the most favorable conditions, notwithstanding which, with excursions in and out of this extent, there may exist pronounced converging strabismus.

A rotation upward of 33° and downward of 50° may be considered, in distinction from the conditions Anophoria and Katophoria* as being a state of *Euphoria*. This condition of Euphoria is quite exceptional, nearly all eyes rotating up more than 38° degrees or less than 30°. The most favorable point is rarely reached. In many cases of Katophoria, even after several days of practice and with the best efforts on the part of the subject of the condition, the upward rotation will fall below 22° and in extreme cases even considerably below this, and downward rotation will be correspondingly increased.

On the other hand, in people with tall round heads and low facial angles the upward rotation is in a large proportion of cases not less than 40°, and in cases of converging strabismus it often reaches 50° to 55° with a corresponding restriction of the downward rotation.

As a general rule, where the rotations of the two eyes are equal in the vertical direction and where no hyperphoria is found by the phorometer, there is with katophoria an excess of downward rotation and with anophoria a restriction closely corresponding to the deficiency or the excess of the upward movements.

There is, however, a small class of cases, a class which examinations extended more widely among different classes of subjects may increase in its proportion to the classes already mentioned, in which both the upward and downward rotations are about equally restricted. The discussion of these cases is reserved for another connection. There is still another class in which the total excursion exceeds 83° and is excessive in the upward direction and also either excessive or not deficient downward. I have found hyperphoria associated with all the cases of this class which I have examined.

In unequal rotations vertically there is often a corresponding inequality in the lateral rotations. This latter inequality is not neces-

*Anophoria, a tending of both visual lines to rise above the plane of the horizon when the head is in the primary position.

Anotropia, a deviation of both visual lines in the same direction which can be seen when either eye is covered and the other is directed in the plane of the horizon.

Katophoria, a tending of both visual lines to fall below the plane of the horizon when the head is in the primary position.

Katotropia, a deviation of the visual lines in the same direction.

sarily due to any disproportion in the laterally acting muscles, since from the very mechanism of the muscles, if there is a disproportion in the tensions of the vertically acting muscles of the two eyes, the inward and outward rotations will be affected. This is not a hypothetical statement only, it is easy to observe the effects of such unequal tensions of the vertically acting muscles. For example, a pronounced diverging strabismus may be quickly converted into as conspicuous a converging strabismus by an advancement of a superior or an inferior rectus, and this with a restriction of a lateral movement which was before excessive.

Also, if the upward rotations, though equal, are quite excessive, with a corresponding restriction of the opposite movement, or if the downward rotations are too great while the upward are too small, in the act of directing the eyes in the horizontal plane there may be a strong tendency of the visual lines to deviate laterally and thus, for example, the inward rotations may be much in excess of those toward the temples; and again this does not depend on a normally faulty condition of the converging muscles but upon the tendency of the eyes to turn to the nasal side independently of any disproportionate influence of the converging muscles and upon a restriction of the outward movement solely due to the tension of the vertically acting muscles.

Even to this rule there are occasional exceptions, for, as it is known that the insertion of the tendons of the eye muscles into the surface of the eye ball is not always uniform, that the insertion of the vertically acting muscles, for example, is in exceptional cases placed more nearly to correspond with the central sagittal meridian of the eye than usual and that in extremely exceptional cases the greater part of the insertion line of these same tendons may be on the outside of that meridian, it will be seen that the mechanical rules which would govern in the ordinary insertions must fail in these rare exceptional instances.

Notwithstanding the greater excursions of the eyes in the horizontal than in the vertical directions, the variations from a given standard of rotations are greatest in the vertical direction.

Even in converging or diverging strabismus the departure from the standard of rotations in and out are generally, almost invariably, less than the departure in the same cases from the standard of upward and downward rotations. Thus, it may happen that in a case of conspicuous converging squint the lateral rotations may be changed from 50° in and 50° out to 60° in and 45° out. Only in extreme cases is

there, as a rule, a greater change than this. Yet in the same case the upward rotation may exceed the standard of 33° by 15° or more. And what is of great practical importance in this connection is that if the tension of the elevator muscles is so far relaxed as to reduce the combined tension of the elevator and depressor muscles to a degree approximating the proper standard, the inward rotations of the eyes become notably less and the outer excursion is equally increased. It thus appears that even in marked converging squint there may be no disproportion between the rotating ability of the laterally acting muscles and that the variation of the excursions from the standard may arise largely if not wholly from the influence of the vertically acting forces

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A WORD OF CAUTION AS TO THE SHAPE OF THE PRESBYOPIC SEGMENT IN CEMENT BIFOCAL LENSES.

By GEORGE M. GOULD, M. D.,
Of Philadelphia.

A patient, for whom I lately prescribed bifocal lenses of the kind I suggested in the *Medical and Surgical Reporter* of Nov. 3, 1888, wrote me from a distant city that his lenses produced double vision and he could not wear them. After much correspondence and investigation the explanation of the mystery was found to consist in the fact that the optician had cemented one segment the wrong edge up. The occasion for this note consists in the fact that this error of the optician could not have happened if the curves of the edges of the wafer had not been uniform with that of the inferior border of the distant lens. Such a curve moreover makes a wider presbyopic segment than is necessary or advisable and if opticians are instructed always to cut the segment narrower, or sharper in curvature than the border of the distant lens, such bothersome accidents as the foregoing may be avoided.

CORRESPONDENCE.

To the Editors of the Record.

Under the head of "Reports of Societies," page 209 in the April issue of the Ophthalmic Record, directly over the remarks by Dr. "Rayley," whose name should be written Reyling, you attribute remarks made by me, concerning the infiltration of the palpebral conjunctiva by neutral salt solution, to Dr. Bulson. The use of the neutral salt solution in this class of cases, so far as I am aware, is original with myself. I listened to the discussion from start to finish and no other speaker present alluded to this method of treatment. The stenographer has made an error and you have copied it.

Yours very truly,

K. K. Wheelock.

[The misstatement, of which Dr. Wheelock very properly complains, must, with many others, be credited to the confused report furnished us by the official stenographer of the Western Ophthalmological, Otological, Laryngological and Rhinological Association. We have done our best to correct obvious errors but, doubtless, others have escaped us. We make this explanation mainly because we endeavored, a month before the meeting, to obtain abstracts of papers so that the discussion might be correctly published with them and at an early date. Had there been time we would have submitted a copy of the report to each speaker.

We hope to have a special reporter at the next meeting of the Association, when these annoying mistakes will not occur. In the meantime we beg the indulgence of the members of the Association.—

T. A. W.

Boston, April 9, 1897.

To the Editors of the Record.

Our attention has been called to a statement in the March number of the Ophthalmic Record, page 162, which reads "already the Globe Optical Co. has its Dr. Lawton's eye-lotion" etc. We wish you would correct the misstatement. The Globe Optical Co. does not advertise or make any eye-lotion. The manufacturer does his own printing and advertising, placing his article on sale at our store.

consigning to us. We are merely an optical *depot* and can hardly be held responsible for what the public asks for. We are constantly aiming to improve the business and its mode of conduct, hoping for the use of better goods and hoping to see greater intelligence shown from year to year. We are not at all in the retail business, doing work for both oculist and optician and, as a corporation, are in no way concerned in the controversy going on between them. We wish you would correct the wrong impression conveyed by the article referred to.

Respectfully yours,

GLOBE OPTICAL CO.

J. W. Sanborn, Treas.

THE INDUBITABLE VALUE OF CAREFUL REFRACTION.

TO THE EDITORS OF THE RECORD.

After reading the editorial in the RECORD, April, 1897, entitled "Asthenopia Not Due to Refractive Errors," I fail to see its *raison d'être*.

In the first place it simply reiterates what every recent advocate of careful refraction has not only admitted, but persistently urged—the intimate relation of general health with asthenopia. Temporary abstinence from near work, constitutional treatment, good food, hygienic surroundings and out-door life are always considered important adjuncts in the treatment of asthenopia. However, the writer has only stated that asthenopia may *result* from neurasthenia and general ill-health. Either inadvertently or intentionally, he omits to state the important converse of his proposition; namely, that neurotic and constitutional debility is very often markedly due to asthenopia resulting from uncorrected ametropia; and in such cases, that glasses prescribed by a careful refractionist are followed by progressive and permanent improvement in the general health.

Again, we are asked to bear in mind that mild forms of blepharitis, conjunctivitis, and other local conditions may cause the same discomfort in near-work as slight refractive errors; yet, not one word is said of the universally acknowledged influence of uncorrected ametropia in the causation of chronic local ocular disturbances. It is the experience of careful "refracting" oculists with whom I have talked, that many obstinate cases of blepharitis, conjunctivitis, etc., have yielded promptly to proper glasses. It has been the great error of ophthalmology to go blindly treating such conditions with antiseptic

and astringent lotions, etc., and, while wondering at their failure, entirely overlook such an important cause as ametropia.

Although the writer states that he does not wish to belittle the importance of careful refraction work, he makes a statement which, to my mind, is absolutely misleading—"there is an unmistakeable tendency to go too far and to overrate the importance of refraction work." Any experience in the clinic or private office of a careful refractionist gains gratitude, compensation, and reputation at the expense, and to the detriment of his unbelieving brethren. As to the student's preference for refraction, in view of the fact that 80 to 90 per cent. of the oculist's private practice consists in the correction of ametropia why should not refraction be the important part of his initial studies?

Finally, it is stated that "it is time to insist that we should always act as ophthalmologists and not merely as refractionists." When we consider the multitude of facts foreign to the refraction, that influence us in prescribing glasses, and the necessary general advice we give our ametropic patients, factors in which personal skill, with all the finer ophthalmic apparatus, personal knowledge of ophthalmology and, last but not least, personal judgment, founded on profitable experience enter, I fail to see how it is possible for a man to be a careful refractionist without being a thorough ophthalmologist.

In addition, is it not unwise to make such a distinction, to be eagerly seized upon and advertised by unscrupulous opticians? It is possible the writer of this misleading editorial intended to convey the idea that too many men, with only a slight knowledge of refraction and fitting glasses, are practicing as oculists, and naturally proclaiming with brazen trumpets, the importance of their limited knowledge. In this I heartily concur, but what the editorial actually says is so full of misstatements, wrong inferences, and reflections upon men who have conscientiously studied the art of refraction only as a part of the great whole of ophthalmology, that, if uncorrected, it cannot fail to partly counteract the beneficial influences of the recognition of the importance of refraction, which, by their courage of conviction and tenacity of purpose, American oculists have fairly forced upon the whole ophthalmic world.

WALTER L. PYLE,
119 South 17th St., Philadelphia, Pa.

TRANSLATION.

Cataract Discission.—*Anton, Elschnig, Vienna,* (Wien. klin. Wochensch. 53, IX.) contributes a lengthy and exhaustive monograph on discission. He gives a thorough historic retrospect and careful study of the present status of the operation. It was the earliest operation done for cataract; first by Henkel after Celsus (1770) who made a scleral puncture and ruptured the posterior capsule in order to get absorption of the lens. Later couching came into vogue, the lens being depressed into the vitreous or into the anterior chamber. In 1788 Beer did discission with his cataract knife. He thought that the operation, although often difficult to perform, was theoretically the best then devised and his opinion is still recognized. Early in this century, Saunders, an Englishman, made valuable contributions and advised discission for congenital cataract only. Scarpa recommended *discissio per corneam* as safer than *per scleram*. Rosas advised it as a last resort in high myopia. The term "discission" was first suggested by Beer and "dislaceration" by Jaeger and Jungken.

Arlt considered discission in two classes, (*a*) those in which the anterior capsule was ruptured to expose the lens to the aqueous; (*b*) those following cataract extractions. He preferred corneal puncture. According to v. Graefe the operations included in the first class must be very limited in number and the principles which he laid down are still valid. Glaucoma and iridocyclitis are dangerous sequelæ which can not always be avoided. v. Graefe proposed that iridectomy be done one week prior to the discission as a means of eliminating these dangers.

Whether the iris should be mutilated in order to obviate the dangers mentioned is a question for consideration in every case, particularly since it can not be thought to give absolute security. Eyes react very differently after discission and it is impossible to state the etiology of the phenomena which follow, but when done for lenticular opacity the condition of the lens substance is of importance and too little attention is usually paid to it. It may be that the debris acts as a chemical and mechanical irritant to the iris and ciliary body, or, as Prof. Schnabel suggests, the swelling of the lens may cause undue pressure or tension upon the iris and ciliary body and cause iridocyclitis. The lodging of particles of debris in the filtration angle is cited as a cause of increased tension of the eye-ball. In lacerating the cap-

sule too great tension may be made upon the zonula and violence be done it with serious results. The wound in the capsule may be too small or the lens be partially dislocated. There is greater liability to these errors when the old technic is followed. Thier has made radical changes in the operation and uses a small cataract knife.

In discussing v. Arlt's second class of operations E. states that the original needle operation had little to commend it as vision was rarely much improved by it and suppuration frequently followed. Many operators agree in attributing these bad results to faulty technic. The established procedure called for puncture per scleram which is quite indefensible on account of the fallacy of operating in the dark and the danger of intraocular hemorrhage. When improperly constructed instruments are used the cornea may be wounded and bruised excessively in operating per coream and fibres of vitreous may be drawn into the wound when infection may easily occur. Antiseptic precautions can not be relied upon since the field of operation can not be rendered perfectly sterile. That the needle leaves a torn ragged wound is often shown by the distinct scar formed in healing. No instrument is less suited to the purpose than the "discission needle". Good and even excellent results have been secured by scleral puncture with the knife. A modified Graefe knife, which fills every indication for discission has been in use by E. for some years and is entirely satisfactory.

Schnabel's technic requires that the puncture be made in the sclero-corneal junction which, he thinks, gives quicker healing and excludes the possibility of vitreous protrusion. The discission knife point is approximated to the eye-ball laterally in the horizontal meridian 1 mm. external to the limbus, the flat of the blade being parallel to the iris. It is passed into the anterior chamber until the point reaches the center of the pupil, then by reversing the motion the capsule is cut. The knife is carefully withdrawn and the anterior chamber remains normal. This procedure combines all the advantages of the needling operation with none of the disadvantages.

E. commends this as the best known method of doing discission for lenticular cataract, but prefers the following for very thick capsules following cataract extraction: The small discission knife is entered near the upper edge of the cornea perpendicular to its tangent, passed to the lower margin of the pupil and made to sever the capsule through its entire vertical extent. In this way the knife is used to the greatest advantage since it is perpendicular to the capsule. If the capsule does not cut readily a slight sawing motion may be made regardless of the

vitreous. A disadvantage of the operation is that the vitreous may follow the knife into the corneal wound, delay its union and increase the danger of infection. But E. in a great many cases has never seen it happen.

Discission was highly commended by v. Graefe as a maturation process principally in senile cataract. Its effect in this respect varies greatly. Sometimes it causes complete ripeness in a few days, again it may require a very long time. The results are so often unfavorable that it is to be considered entirely unsuitable for a ripening process. It has been shown by Schnabel's observations in a large number of cases that all uncomplicated cataracts in persons above 50 may be easily removed from the eye without any remainder being left in the eye. It is a matter of utter indifference whether the lens presents a distinctly opaque nucleus or not, or whether the cortex be streaked with opacities or be quite unchanged. Those cataracts which show an intensely white nucleus with transparent, bluish-white anterior cortex are least suited to operation but tend to mature very rapidly. All other cataracts may be safely operated upon as soon as the vision is so reduced that the patient can not perform his usual duties.

WÜRDEMANN.

REVIEWS.

Hysterical Monocular Amblyopia Coexisting with Normal Vision. — Dr. Morton Prince, of Boston (*American Journal of the Medical Sciences*, February 1897), reports two cases in which there was normal binocular vision, but monocular vision was defective. This defect he considers hysterical, and refers to observations of Parinaud, Pitres, Regnard, and Charcot, in support of his views. The nature of the defect he says is a psychical one, "the sensory images not entering into that chain of associated ideas which constitutes the individual's personality." "The hysteric really feels and hears and sees. The sensory impulses coming from the periphery are not only physiologically recorded, but are perceived by the subject and associated with other mental processes." The variations in vision are analogous to what occurs in the areas of common sensation. In hysterical amblyopia the tests applicable to organic amblyopia are liable to lead to grave error.

Case I. was a male who was thrown forward in an electric street

car which was suddenly stopped by a "trival" collision and the action of the brakes. He was confined to bed fourteen months afterwards with pain, nausea, and paresis. Eighteen months after the injury he showed left hemiplegia (face not involved), left hand-grasp feeble with eyes open, almost *nil* with them closed; walks with help; tongue protrudes straight; left hemianesthesia and hemianalgesia, involving face; no atrophy; paralyzed limbs not spastic; knee-jerks equal and normal; hearing impaired, more on left side; pain in the back of the head and spine; spine tender; cries without cause; irritable and became violently excitable during examination; thought he was the object of a conspiracy. The vision of the right eye was good,but that of the left "was much impaired." The right eye being closed, he could not count fingers at one to three feet, though seen indistinctly; but at eight feet "he could count them, or rather he saw them multiplied." A candle at this same distance was seen, but as "splashes of light." Ordinary type could not be read at any distance. The eye was color-blind, and the visual field was "retracted."

The genuineness of the amblyopia was tested by slipping a pencil between the sound eye and the print while he was reading. If one eye be blind, the patient should be unable to read by this test, as the pencil would cover a part of the letters necessary to be seen with the sound eye. But to the author's surpise he read without interruption. This test would suggest malingering. It was therefore decided to make further tests. A strong convex lens was interposed between the sound eye and the printed page,and he stopped reading at once. Next a lighted candle was held about eight feet from the patient, and with the "amblyopic" eye it was seen "only as splashes of light." When, however, with both eyes open a prism was held before one, he saw two distinct flames, one similar to the other.

The author admits that this case was involved in litigation for damages, and that "the tests gave results similar to those obtained in simulated blindness;" but the other phenomena observed could hardly be reconciled with the theory of deception.

Case II. A man was very desirous of obtaining a position on the police-force of Boston. On examination he could not meet the requirements of the test for vision. On May 9th, 1896, he was examined, when it was found that vision of the right eye by Snellen's test-types was $\frac{15}{70}$—, and that of the left was $\frac{15}{100}$. Binocular vision, however, was $\frac{20}{15}$, "which was better than normal." The patient

"said that he could not see well with each eye separately, but he could see perfectly, if he used both eyes together." Two or three years before, he had been rejected for defective vision in each eye, greatly to his surprise, as he always thought that he had good sight. He at that time consulted an oculist who confirmed the "fact that with binocular vision his sight was normal; it was only with monocular vision that his eyesight was impaired." The visual field was normal, but at this time there was partial color-blindness.

Examinations were subsequently made, one in conjunction with Dr. J. J. Putnam, and another by Dr. O. F. Wadsworth. At one of these the vision, both monocularly and binocularly, was the same as on the day before. On holding a prism before one eye "*amblyopia developed at once, and diplopia was not exhibited*," no matter in what direction the base of the prism was placed. After this test, the patient was made to hold a "diaphragm," "a piece of paper in which a hole was cut," or "an ophthalmoscope without a lens" before one eye, but to use both eyes for vision. At first the "amblyopia was not removed," but later he could see perfectly through it. Dr. Wadsworth's examination showed that the amblyopia persisted when two prisms, being placed together so as to counteract one another and make what was equivalent to a plain glass, were held before one eye. This experiment, according to Dr. Wadsworth, seemed to show that the failure to see was "due to some sort of mental inhibition by auto-suggestion."

On the next day, when the prism was held before either eye "the amblyopia was nearly removed," the patient being able to read type that he could not read if either eye was blindfolded, and there was no double vision, whatever the direction of the axis of the prism. In turning the prism around, the test object moved with it, as happens with a normal eye, the other eye being closed. The patient was given a book which, with binocular vision, he read "perfectly." When a strong convex glass was placed before one eye, he stopped reading at once and could not proceed. With the test with a screen binocular vision was not restored, but "the amblyopia continued in each eye." The pencil-test was a failure at first, but Dr. Wadsworth afterwards "succeeded in obtaining vision in one amblyopic eye under conditions similar to those under which the amblyopia developed." The patient at first was unable to read the letters obscured by the pencil, but "by a process of education" he succeeded in "overcoming this amblyopia and producing a monocular vision." This was done by holding the

pencil to one side, where it could still be seen, and then bringing it in front of the type. "The patient now read all the letters, although some were obscured to each eye."

At the second examination color-perception and the field of vision were normal. The tests wearied the eyes to an exceptional degree and produced a quivering of the eyelids "so frequently observed in hysteria."

"In all other respects the patient was a perfectly healthy individual."

The author feels that this case "settles the question once and for all of malingering as an explanation of the apparently paradoxical phenomena observed in hysterical amblyopia."

ALVIN A. HUBBELL.

ABSTRACTS.

ABSTRACTS OF ARTICLES PERTAINING TO THE OCULAR NERVOUS APPARATUS.

By H. GIFFORD, M.D.,
Omaha, Neb.

Hereditary Ophthalmoplegia Externa.

Panas (*Archives d'Ophtalmologie*, Dec., 1896) reports a case observed by Gourfein, in which the grandmother, son and four grandsons were all affected with double-sided, congenital ophthalmoplegia externa, which was complete, so far as voluntary movements were concerned, except in the case of one of the boys, who had some power of motion in the external and internal rectus of one eye. Slight nystagmus, mostly rotatory, was present in all the eyes examined, also a certain amount of amblyopia ($V = \frac{1}{3}—\frac{1}{6}$). The functions of the iris and ciliary muscles, so far as ascertained, were intact. Ophthalmoscopically, nothing decidedly abnormal was observed. With regard to the etiology, Gourfein concludes that the lesion is not nuclear, but consists in an hereditary muscular atrophy, differing from the type described by Leyden, Erb, Charcot and others, only by being localized in the extrinsic eye muscles. Noteworthy is the fact that while all of the grandsons were affected, the two granddaughters had perfectly normal eyes.

Paralysis of Divergence.

Although Parinaud reported cases, a number of years ago, which seemed to show that there was a special apparatus for divergence, which could be paralyzed without the conjugate motions of abduction being affected, the matter has received very little attention compared with that accorded to paralysis of the converging power. Straub reports three cases (*Centralblatt fuer Augenheilkunde*, Jan., 1897) bearing on the point, which had the following symptoms in common: The patients complained of diplopia, although the lateral and vertical motility of each eye seemed unimpaired. The diplopia was found to be homonymous, and most marked when the gaze was directed at some distant object, straight ahead. When the observed candle was brought nearer, the distance between the double-images became steadily less until at a distance of from 10—36 cm. they were fused. The images also came together gradually when the candle was moved to either side on a level with the eyes. When the candle was moved toward the patient until the diplopia disappeared and then taken farther away again, the images remained fused until a point was reached considerably farther from the eyes than that at which the diplopia had disappeared when the candle was being brought toward the eyes. Straub maintains that these could not have been cases of simple paresis of one or both external recti on account of the fusion of the images on looking to either side; and this symptom, which was not observed by Parinaud, he considers to be the distinctive feature of this affection.

One of the cases was seen only once. In another, the patient had other paralyses, caused probably by a brain-tumor. The third patient improved under the use of potassium iodide (which had no effect for two months, if at all), and after three and one-half months was almost as well as ever.

The Eye-Symptoms of Hereditary Ataxia.

On the text of a family in which four of the children were affected with Friedreich's disease, Burr (*Annals of Ophthalmology*, Jan., 1897) discusses the eye-symptoms generally present in such cases. Nystagmus, occurring on attempted fixation or voluntary motion of the eyes, is common, while static nystagmus, i.e., nystagmus of the resting eye, is very rare. The pupillary symptoms vary. Either contraction or dilatation may be present. The reactions are apt to be sluggish, but the typical Argyll-Robertson pupil is not common. "Marked optic atrophy never occurs"; though "a white discus in one case" and

partial atrophy in another have been reported. In the cerebellar type of hereditary ataxy, on the contrary, optic atrophy with contraction of the fields, or amblyopia, is common. The strabismus, diplopia, blepharospasm and ptosis which have been observed in Friedreich's disease are probably to be regarded as complications rather than as a part of the symptomatology of the affection.

Acute Rotary Nystagmus — Optic Neuritis Due to Dental Irritation — Sudden Partial Homonymous Hemianopsia with Transient Auditory Symptoms.

Marlow (*ibid.*), among other interesting cases, reports the foregoing. The first patient was a woman, aged 44, who, after having severe pain in the top of the head, noticed her vision getting dim, with diplopia and an apparent whirling of all objects looked at. Examination showed marked rotary nystagmus, blurred optic disk-margins, with surrounding retina somewhat hazy, and rounded whitish areas in the macular retina. Later, the movements of both eyes were freer to the right than to the left, and there was decided impairment of the downward movement of the left eye. During the next three months, the nystagmus disappeared except in extreme deviations of the eyes from the position of rest, and the V. improved from $\frac{6}{36}$ and $\frac{6}{60}$ to $\frac{6}{12}$, both s des. Acute nystagmus is certainly very rare except in the case of miners, and in connection with serious nervous diseases, and it remains to be seen whether this patient's nervous symptoms will not develop into one of the well-marked types. The abstracter would suggest that the reports of all such cases should be deferred until as complete an account as possible of the natural course of the disease can be given.

In the case of the second patient, a woman of 25 years, toothache and swelling of the face was accompanied by marked optic neuritis of the same side, with slight exophthalmos and pain on moving and pressing the eyeball. All symptoms improved rapidly on the opening of an alveolar abscess of the first upper bicuspid. This seems to have been one of those cases in which the infection of the orbital tissue is conveyed through the neighboring veins without the intervention of an antrum abscess.

The third patient, a woman of 28 years, was attacked almost simultaneously with partial right-sided hemianopsia and a severe tinnitus with slight vertigo, with no defect of hearing. In the course of two months the tinnitus ceased entirely, but a loss of the entire right upper

quadrant of the field, and part of the lower quadrant remained. There was the usual exception from the hemianopsia of a small area at the center. Marlow suggests two possible explanations of this complex of eye and ear symptoms: First, that the lesion may have been situated in the hinder third of the posterior limb of the internal capsule, where the visual and auditory fibers are closest together; second, and more probably, that the main lesion, embolus or hemorrhage, was situated in the visual center in the occipital lobe, and was accompanied by a vaso-motor disturbance of the same hemisphere, to which was due the tinnitus with the vertigo.

On Secondary Atrophy in the Nuclei of the Motor Nerves of the Eye.

These changes have been mainly studied experimentally in the lower animals, but Sachs (*Archiv f. Ophthalmologie*, XLII., 3) has had three cases which further materially our knowledge of the conditions existing in the human brain. The first patient was a child of 26 months, whose left orbit was eviscerated for sarcoma of the globe and optic nerve; death from sarcoma of the brain occurred 69 days thereafter. The other two patients were old people with right-sided abducens-paralysis, persisting in one case nine months, in the other, three years, before death. The cause of the paralysis, in the first of these two, was pressure from an endothelioma of the dura; in the other, an interstitial neuritis of the basal part of the nerve. The microscopical examination showed in all these cases, degeneration of the abducens nucleus on the side of the affected eye, while the nucleus of the opposite side was normal. No evidence was found to confirm the opinion of Duval that the abducens-nucleus sends a small bundle of fibers to the inferior rectus of the opposite side. In the case of the first patient, degenerative changes were found in the trochlearis-nucleus on the side opposite to the eviscerated orbit, only; and Sachs agrees with Kausch in considering this nucleus to consist only of that group of cells which constitute an immediate distal (posterior) prolongation of the oculo-motor-nucleus lying in a depression of the posterior longitudinal fasicle and characterized by interruptions and asymmetrical development on the two sides. On the other hand, the group of cells described by Siemerling as the "main trochlearis-nucleus," lying dorsad and mesad of the beginning of the trochlearis nerve, Sachs considers to have no connection with the trochlearis system. The oculo-motor nucleus showed degeneration on both sides, crossed posteriorly, uncrossed antriorly, while a central area on each

side showed crossed degeneration, dorsally, and uncrossed degeneration, ventrally. These results, indicating that the origin of the abducens is uncrossed, that of the trochlearis crossed, while that of the oculo-motor is partly crossed and partly uncrossed, agree in the main with those obtained by other students of this region of the human brain, and with the experimental results of Gudden in the case of rabbits. With regard to the superior lateral oculo-motor nucleus of Darschewitsch, Sachs could find in it no signs of degeneration on either side, and hence doubts its connection with the oculo-motor system. In the fact that what was left of the nerve trunks after the evisceration of the orbit were comparatively normal at their distal ends, but showed signs of degeneration, increasing in proportion to the proximity to the nerve-centers, Sachs sees a confirmation of the "cellulifugal" theory of nerve degeneration, according to which, if a nerve be injured, the ensuing atrophy does not simply spread in both directions from the seat of the lesion. It spreads distally unless (as in the case of the optic nerve) there are important trophic centers at its peripheral extremity; and in the proximal portion of the nerve the atrophy which occurs is secondary to changes in the nucleus itself, these changes being probably in the nature of an atrophy from disuse or inactivity.

On the Anatomy of the Optic Chiasma.

For a number of years, practically, the entire ophthalmological world with the exception of Michel of Würzburg, has accepted the partial crossing of the optic nerve-fibres as a fact, but at the last anatomists' congress in Berlin, interest in the question was again revived by Kölliker, who, after extended anatomical studies of the chiasma in man, dogs, cats, foxes and rabbits, decided in favor of a total crossing of the fibres, and his views seemed to meet with general acceptance by the anatomists present. This has led Grützner (*Deutsche med. Wochenschrift*, 1897, 1 and 2) to investigate the subject anew, from a purely anatomical standpoint. He points out that because in a microscopical section (and the conclusions of Kölliker seem to have been largely based on such sections) all the fibres are seen to be crossing from one side to the other, we have no right to conclude that in other planes of the chiasma some of the fibres may not have started from the same side to which, in the section, they seem to be crossing. In other words, fibres may start from one nerve to the opposite side of the chiasma and then, in another plane, pass out into the tractus of the side from which they started, thus giving in a microscopical section, at

the latter plane, a misleading impression of a complete crossing. The impossibility of following the complicated course of the fibres through a series of sections leads Grützner to return to the older method of attempting to unravel the knot of fibres by teasing them out under a low magnifying power. To facilitate this, he adopted Stilling's plan of soaking the chiasma for some days in a mixture of glacial acid, creasote and water. This method gives results fully as valuable as the study of microscopical sections, if not more so, and with much less outlay of time. The anterior and posterior commissures can be seen at once, also the S-shaped course of the crossed fibers, and, finally, one can quite easily separate fibres which, apparently, run from one tractus to the nerve of the same side, although in so doing they do not follow the shortest course possible. Nor is there a well defined, solid, uncrossed bundle, as the current diagrams would lead one to expect.

In further support of the semi-decussation, Grützner, after mentioning the cases from the older literature in which each optic nerve ran directly from one side of the brain to the eye of the same side, cites, with numerous other facts, the more recent case of Ganser in which a bundle of fibres sprang from the posterior part of the right tractus and passing forward, entirely separated from it, entered the optic nerve of the same side 34 mm. behind the globe; also the case of Siemerling, in which one tractus was found to be entirely destroyed, although the patient had had during life useful vision with the eye of the opposite side.

On the Situation and Dimensions of the Optis Chiasma and its Importance in the Diagnosis of Hypophysis-Tumors.

Anatomists generally describe the chiasma as lying in the depression of the upper surface of the sphenoid known as the optic groove, thus placing it entirely anterior to the hypophysis; and some authorities, accepting this as true, have explained the bi-temporal hemianopsia which often accompanies tumors and hypertrophy of the hypophysis as the result of pressure by the latter on the posterior part of the chiasma and the optic tracts. According to Zander (*Vereins-Beilage der Deutsche med. Wochenschrift*, 1897, 3, p. 13), who has examined this region in 100 skulls, this groove is present in only 34 %, while in 44 % there is not only no groove, but a bulging upwards of this bony surface. Moreover, when the groove is there, the chiasma does not lie in it, but considsrably farther back, so that in many cases the hypophysis lies entirely in front of the chiasma, between the optic nerves,

and never behind it, though the length of the intra-cranial portion of the opticus varies so much (from 6 to 21 mm.) that the chiasma sometimes lies directly over the hypophysis. This indicates that when, from enlargement of this body, well-marked bi-temporal hemianopsia occurs, the tumor must lie well forward, pressing only on the mesial surfaces of the optic nerves, since, in the chiasma, the fibres are so thoroughly mixed up that pressure even upon its anterior surface would probably cause trouble in both halves of one or both fields. Zander finds, in 60 % his cases, a decided dislocation of the chiasma toward one side or the other with a corresponding difference (sometimes 5 mm.) in the length of the intra-cranial portion of the optic nerve. This may account for some of the cases in which enlargement of the hypophysis affects only one nerve. Z. gives as the dimensions of the chiasma: saggital diameter 4—13, average 8.04 mm.; transverse, 9.75—19.75, average 13.29 mm.; vertical average, anteriorly, 3.10 mm., posteriorly, 1.25 mm.

[The text books on anatomy are often curiously inconsistent with regard to the relations between the chiasma and the hypophysis. They describe the chiasma as lying in the optic groove or on the olivary eminence of the sphenoid, which would, of course, bring it in front of the hypophysis; but in figuring the base of the brain the hypophysis is placed either just below the chiasma, or more commonly entirely in front of it, between the optic nerves, as Zanders says it is. An examination of Plates 6, 15 and 22, of MacEwen's Atlas of Head Sections, shows clearly that in some cases, at least, a considerable portion of the hypophysis must lie in front of the chiasma. They also make it plain that in case of the hypophysis lying partly below the chiasma and partly in front of it, there is a much greater space between the posterior part and the chiasma than between the anterior part and the optic nerves, so that in a uniform hypertrophy of the hypophysis the nerves would be pressed upon before the chiasma.—G.]

Amblyopia and Amaurosis of the Peri-papillary Zone of the Retina.

Berger (*Archives d'Ophtalmologie*, Nov., 1896) recalls the fact that the fibres in the distal portion of the optic nerve may conveniently be divided into three groups: 1. A central group, surrounding the central vessels and supplying the anterior part of the retina. 2. An intermediate group, supplying the equatorial region. 3. A peripheric or sub-pial group, immediately within the pial sheath, destined for the posterior part or, as B. calls it, the peri-papillary zone of the retina.

(The pupillo-macular fibres contained in a sector of the temporal half of the nerve constitute, of course, a partial exception to this plan.) From this arrangement, it follows that any process invading the nerve at its periphery will show itself in an enlargement, absolute or relative, of the blind spot, and, if the process proceeds at all gradually, the absolutely blind area will be surrounded, more or less completely, by a zone of amblyopia. A process developing around the central vessels of the nerves, on the contrary, will show itself first in a peripheric contraction of the field, and a similar contraction will result from any decided diminution of the calibre of the central vessels, through interference with the nutrition of the region supplied by the terminal arterials. Berger reports several cases of netro-bulbar lesions of the optic nerve in which the blind spot was decidedly enlarged. In one of them, a case of aympathetic optic neuritis, this symptom was of especial interest as tending to confirm the view of Deutschmann, that the inflammation spreads from one eye to the other, through the intervaginal spaces, penetrating from the latter into the periphery of the nerve-trunk. He has also observed it in locomotor ataxia, alcoholic amblyopia, atrophy from artero-sclerosis, and hysteria. In testing for this symptom, it should be remembered that the center of the blind spot, normally, is about 12° from the point of fixation and that its diameter has been found to vary from 3° to 9°, the average being 6°—7°.

EYES STRAIGHTENED.

The popular opinion that persons who are born cross-eyed or who may become so at any age, cannot have their eyes straightened, is at last exploded. An eminent eye specialist of Detroit, Dr. John Blank, has discovered a form of treatment which is entirely free from pain whereby any case of crooked eyes may be straightened and that without taking the eyes out. We have occasionally heard of people being obliged to have their eyes taken out in order to have them straightened, but this the doctor says is absolutely unnecessary by his form of treatment, he having successfully straightened a large number of cases during the past year.—*Windsor Review.*

REPORTS OF SOCIETIES.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held April 13th, 1897, Dr. Montgomery in the chair.

Dr. K. K. Wheelock, of Fort Wayne, was elected a member. The Secretary read the applications of Drs. A. E. Bulson, Jr., of Fort Wayne, and E. A. Lawbaugh, of Chicago.

Dr. Ware showed a colored boy, nine years of age, on whom one year ago there appeared a swelling at the outer-upper angle of each orbit. These swellings increased rapidly in size, so that they became about three-quarters of an inch long, projecting forwards and downwards; dislocating both lachrymal glands and causing complete ptosis of both lids. The patient was first seen about a month ago and a diagnosis of specific periostitis made. Under large doses of iodide the swellings rapidly decreased, so that at present they can hardly be felt. There was no pain at any time in the course of the disease.

Dr. Colburn opened the discussion on Muscular Asthenopia by reporting four additional cases of chorea treated by tenotomies.

The first case is a girl of 10, with a hyperphoria of four degrees and exophoria of thirty degrees, which was corrected by operation. Four weeks after the operation the patient was well and has been so since.

The second case, a girl of 26, chorea of three months. Operated on twice and cured.

The third case, a boy of 5½, improved by the correction of 2½ D. of astigmatism, but chorea remained on using the eyes. No operation was done in this case.

Fourth case, a boy of 10, with marked degree of astigmatism, the correction of which cured the chorea.

Dr. Colburn reported four additional cases of epilepsy, all of which were cured. He thinks that of the different heterophorias, hyperphoria is far more important in the causation of muscular asthenopia than insufficiencies of the lateral muscles. His statistics showed a large percentage of asthenopic cases due to anomalies of the extrinsic muscles, and his results have been very satisfactory.

Dr. Haight reported two cases of heterophoria, one with 4°, and the other 12° exophoria, both of which were cured by operation.

Dr. Coleman had in years past operated a number of times for muscular asthenopia; but had found the results of operation so very uncertain that he had practically given it up, confining himself only to those cases that have diplopia. He found many cases in his own experience and in that of others where, after the muscular error was completely corrected, the heterophoria had returned in from one to three months, and no amount of operation was able to permanently correct it. He had also found that the methods of testing for heterophoria were very unsatisfactory and uncertain.

Dr. Hotz reviewed 61 cases in his own practice, 10 with hyperphoria, 21 with esophoria, and 30 with exophoria, in which operations had been done with satisfactory results. He found that hyperphoria was most often the cause of symptoms. He had found that exercising the muscles after the manner of Gould was of no value in these cases.

Dr. Gradle thought that less than 1 per cent. of all cases of asthenopia had any relation to muscular troubles. He had found many people without any symptoms with marked degrees of muscular trouble. The only cases that he had thought important were those where there was what was formerly called a latent squint, but these cases do not have true asthenopia; they have diplopia. Dr. Gradle considers that muscular asthenopia is merely an expression of one of many symptoms in a neurotic person, and he does not believe that balancing the muscles by operation is the best method of treating such cases.

Dr. Colburn, in closing the discussion, referred to the fact that it was not sufficient to test a patient's muscles with the eyes directed straight ahead. It was of great importance in many cases to test the muscles with the eyes in a different position.

C. P. PINCKARD,
Secretary.

SECTION ON OPHTHALMOLOGY,

College of Physicians of Philadelphia.

Meeting of the Ophthalmic Section of the College of Physicians of Philadelphia, March 16, 1897. The President, Dr. Wm. F. Norris, in the chair.

Dr. Wm. T. Shoemaker reported, for Dr. Chas. A. Oliver, a *Case*

of Traumatic Sub-Conjunctival Dislocation of the Lens. A 34-year-old woman fell and struck her right eye against the thumb latch of a door. Two days later the lens mass was seen resting upon the sclera in the upper inner ciliary region. The cornea was hazy, anterior chamber partly filled with blood, the iris retracted and tremulous and presented a large coloboma. No fundus reflex could be obtained. The lens was removed by conjunctival incision. No sutures were used and no reaction followed. At present the scleral scar is firm and discolored and the coloboma unchanged. The remnants of the torn capsule are faintly visible in the pupil. Vision with a correcting glass is $\frac{20}{30}$.

Discussion.—Dr. W. F. Norris stated that it was his experience that staphyloma frequently followed injuries of this character when the edges of the ruptured sclera were not united by sutures. The fact that the pupil is crossed by a few opaque fibers of capsule shows that the capsule was ruptured at the time of the accident.

Dr. G. C. Harlan referred to a case of dislocation of the lens under the conjunctiva, in which he had seen the patient occasionally for several years. There was useful vision and the eye was not interfered with as it remained quiet. In another case he had removed the lens by incision. It was found that the rupture of the sclera had been closed chiefly by the adherent lens capsule, and a cystoid cicatrix resulted, followed later by a considerable staphyloma. In all the cases he had seen the lens had been forced out through the upper corneoscleral junction. This is usual in this accident, which is generally the result of a blow from a blunt instrument, such as the fist or a billet of wood, striking the ball below and forcing against the roof of the orbit. The sclera is ruptured by contrecoup and the lens is extruded.

Dr. M. W. Zimmerman reported a *Case of Bilateral Pigmented Tumors, Probably Cysts of the Ciliary Bodies.* Mrs. J., aged 59, with good family history, had been under observation since April, 1893, when she was seen by Drs. Harlan and Jackson in consultation. In the lower and outer quadrants of both eyes the iris was crowded forward by dark brown tumors presenting into the pupil between the lens and iris. The tumors, examined under mydriasis, were smooth and not nodulated and apparently not attached to the iris. Since the irides were not involved and the tumors could not be removed by iridectomy, no operation was advised and no treatment other than weak eserin was used. During the past four years the tumors had changed somewhat in outline, and that in the right eye very slightly increased in size. In

other respects the eyes were normal. There was no iridodialysis or other injury to the iris tissue. Vision equaled one-third of the normal.

Discussion.—Dr. Harlan had agreed that the iris did not participate in the disease. The case was decidedly obscure, but he believed that it would prove to be ciliary sarcoma. The absence of an important symptom of neoplasms in the region, namely inflammatory reaction, was noted. Usually the growth is adherent to the adjacent iris, and as it progresses into the pupil it carries the margin of the iris with it, producing iridodialysis. He thought, however, that this might occur later. But as it had not done so in four years, and as there had been but little change in the condition of the eyes, he thought now that the presence of a malignant tumor was hardly possible.

Dr. G. E. De Schweinitz read a communication on *Angioid Streaks in the Retina*. After briefly reviewing the literature and referring to his previous case, reported to the Section on Ophthalmology and to the American Ophthalmological Society, Dr. De Schweinitz presented a second bilateral example of extensive, branching, pigmented striæ in the retina, the anastomosing bands being easily traceable to their points of origin in hemorrhages. The patient, a brother of his previous case, was a working man, 50 years of age, who had been a hard drinker but who had suffered from no notable illness. Examination of the heart, kidneys, and blood yielded negative results. The pathology is obscure, and we are at present unable to say more than that these cases represent an unusual metamorphosis of retinal hemorrhage.

Dr. Edward Jackson suggested a *Modification of the Sight-hole of the Ophthalmoscopic Mirror*, to avoid all annoying reflexes from it. This consisted in making the sight-hole merely through the silvering, leaving the glass intact, and then cementing a thin piece of glass back of the sight-hole, extending beyond it on the silvering to protect it from dust. The dust falling upon either surface being easily removed, complete and permanent freedom from the luminous cloud caused by reflexes from the sight-hole can be obtained. The plan had been first applied to the mirror for skiascopy, and later adapted to that of the ophthalmoscope.

Dr. Wm. M. Sweet presented, by invitation, a novel apparatus for *Determining the Location of Foreign Bodies in the Eye by the Roentgen Rays*. By means of three horizontal rods of aluminum, each with a rounded extremity to be adjusted to the inner and outer

canthus and to the center of the upper lid, held in position on the patient's face by a band similar to that of the head-mirror, shadows are cast on the sensitive film. He prefers the double film to the glass photographic plate on account of its flexibility and lightness, and because mistakes in diagnosis incident to imperfections in one film or plate are avoided. The Crookes' tube, held 13 inches upward and backward opposite the parietal bone, exmits rays that pass through the external orbital wall, the tissues surrounding the ball, and the ball itself, and are received on the film, which has been thrust as far as possible into the inner canthus, and maintained in position by a holder.

Two exposures are made, one with the tube on a line with the eye, and the other at an angle of 25 degrees with the horizontal plane.

The approximate position of the foreign body is determined by attaching the apparatus to an upright support and so placing a lighted candle that the shadow cast by the indicators will fall similarly to those thrown by the Crookes' tube. A small object is then held before the candle in such a position that its shadow is identical to that of the foreign body. A record having been made of this line of shadow, the candle is moved until the shadows of the indicators correspond to those on the second negative. The object is again employed and a second impression recorded. Where the two lines of shadow of the test object cross should be the situation of the foreign body in the eye. Knowing the distance of the center of the cornea from a fixed point of the apparatus, the distance that the foreign body in the eye lies behind this point, and therefrom its approximate position may be measured.

Dr. G. E. De Schweinitz presented a *Case of Suspected Sarcoma of the Ciliary Body* in a girl aged 6½ years, with the symptoms of cyclitis, associated with mark iris bombé, the upper and outer portion of the bugling iris being of a grayish-black color, while the lower portion was of a greenish-blue. These symptoms had existed, according to the history for about three months, with occasional exacerbations of the cyclitis and periods of increased tension. The pupil was occluded and there was a small central corneal scar, but history of injury could not be obtained. Skiagraphic examination was negative. The bulging of the iris had notably increased during the last few weeks, and symptoms of sympathetic irritation were evident in the sound eye.

Dr. C. A. Oliver showed a *Case of Supposed Foreign Body in the Eyeball.* The left eye had been injured by a piece of flying metal from a steel drill some two weeks previously. The line of injury extended

through the cornea at its lower inner quadrant, the inferior nasal[1] portion of the iris, and the lens, with a localized detachment of the retina and choroid at corresponding points. The pupil was heart-shaped. The media, with the exception of the isolated lens opacity, were clear. No foreign substance could be seen.

Through the courtesy of Dr. C. L. Leonard, of the Pepper Laboratory of Clinical Medicine, the case is now being studied with the X-ray apparatus. A number or exposures are being made from different positions so as to obtain, if the body be present, a series of triangulations from which the actual situation of the foreign material can be determined.

Dr. C. A. Oliver showed a case, with water-color sketches by Miss Washington, illustrating both the early and the late appearances of *Thrombosis of the Inferior Temporal Vein* of the left eye, the conditions being found, at an interval of two years, in a young man without any history of traumatism or relevant dyscrasia.

HOWARD F. HANSELL.
Clerk of Section.

WESTERN OPHTHALMOLOGICAL, OTOLOGICAL, LARYNGOLOGICAL AND RHINOLOGICAL ASSOCIATION.

[CONTINUED FROM THE APRIL NUMBER.]

Dr. Flavel B. Tiffany, of Kansas City, Mo., read a paper on **"Skin Grafting for Malignancy of the Orbit and Entropion."** (Abstracted in the April issue of the RECORD.)

Dr. Reynolds: I did not quite understand where the graft is made in a case of entropion where there is loss of substance from the border of the lid? Do you make it from a distance?

Dr. Tiffany: I usually take a piece from the lid, a completely detached graft without any pedicle, removing the strip of integument two or three millimeters from the margin of the lid, then split the lid-margin and transplant this. Sometimes I go deeper than the integument into the tarsus, and take out a wedge-shaped piece, so as to pull up the margin of the lid and turn the layers into their normal position.

Dr. Reynolds: Skin grafting was revived in this country after the publication of an extract from a prize essay by a Frenchman named, I think, Reverdin, and subsequently in 1870 the late Dr. John T. Hodgen wrote on the same subject. In the meantime I had made

a couple of experiments or experimental attempts to use it, and in one of my cases, a case of entropion of the upper lid with profuse loss of substance near the central portion, and cicatrical contraction, sharp and complete in the central, and only partial along the margin, I dissected up and transplanted a portion of skin taken from the forearm of the patient, and everything seemingly did very well for the first two or three days; it underwent the peculiar change described by Reverdin and I thought the patient was doing very well, but one night I was summoned and found him in a state of syncope from loss of blood. I did what was then a new operation, divided the external commissure of the eyelids and then split the fresh border, and without removing any portion of the skin I slipped it up higher and the patient made a very satisfactory recovery. I have had other cases in which that proceeding was not sufficient, where the tarsus had been absorbed. In that case I have divided the free border of the lid, notched it upwards at the outer and inner canthi (performing in some cases external canthoplasty) and then dissected up a bridle of the sound skin a distance of two or three millimeters above the line of the lashes and about two millimeters broad, passing that down and stitching it at two points only near the outer and inner canthi and allowing the center portion to lie loosely. I have never seen sloughing take place after such an operation, and I have nearly always had the happiness to observe an entire recovery from the entropion. As to cutting out a wedge-shaped piece of cartilage or detaching the cartilage or cutting the elliptical fold of integument down to the surface of the tarsus, I believe I have gone the rounds; I have tried all of them, and the operation advocated some years ago by Dr. Hotz, of Chicago, seemed satisfactory in some cases, but in nearly all of them the entropion returned. So the transplanting of a bridle of skin from above is the quickest and most satisfactory, combined with external canthoplasty. I am sure that no operation will apply to all cases, but I am equally sure that Dr. Tiffany's experience is valuable and the method he uses does apply to some cases and give a more reasonable prospect of relief permanently than perhaps any other operation.

Dr. Wheeler; I would like to ask for some information about a case I will report. About a week ago last fall I enucleated an eye for an epithelioma occurring at the outer canthus, involving the eyeball and recti muscles and periosteum. I took away the entire upper and lower lids, going well down under the cheek and up into the brow and well back into the temple. I eviscerated the orbit, took out its entire

contents and packed it with a fifty per cent. solution of zinc-chloride. Afterwards the patient went away from my town, and I recommended her to a physician in Illinois whose name I have forgotten. But in about a year this patient returned and came to my office to see me, and I found that it was covered entirely with a dermoid covering; there was no trace of an operation or of a scar—no scar tissue was left or at least visible to the naked eye. I am at a loss to know just what occurred there.

Dr. Reynolds: What was the lapse of time?

Dr. Wheeler: About one year. Dr. Bulson saw the same case.

Dr. Alt: You did not attempt any covering of the bone of the orbit?

Dr. Wheeler: None whatever.

Dr. Alt: Was the periosteum removed?

Dr. Wheeler: It was only scraped.

Dr. Reynolds: My impression is you have had the same experience as myself. I removed an immense sarcoma from the orbit in a gentleman 24 years of age. He was very much emaciated at the time of the operation, but gained flesh rapidly and improved in every way, and in a few months time the orbit was covered over with the same sort of growth described by Dr. Wheeler. He went on five long years without any signs of trouble, when the parotid gland became enlarged and in a few months a melano-sarcoma appeared at the brow. I applied a solution of half a drachm of chloride of zinc in an ounce of water. My patient finally died, but the cicatrical contraction closed the orbit.

Dr. Tiffany: I would like to say in reply to Dr. Reynolds, I still maintain that those grafts which were used at that time were merely shavings placed on the ulcer to cure it, as it were, but we now use them to cure and destroy the epithelial cancer cells. That never has been mentioned in any article that has ever been written prior to the one that I wrote, and for several years since there has been no opposition to that fact to my knowledge, and I have looked up the subject very carefully. So I claim in this case that it had a specific effect in destroying the malignant cells. The healthy cells killed the malignant cells; it is like the grafts on a sour apple tree, as it were, bringing forth good fruit. In these cases when you apply these healthy grafts there is no return of the disease. That has been my experience, not in one case, but probably in from fifteen to twenty cases. In regard to making canthotomy, I sometimes make that, but it always leaves a deformity, and I avoid it unless it is absolutely necessary.

Dr. W. H. Baker, of Lynchburg, Va., read a paper on "Mental Depression apparently the result of a Double Graduated Tenotomy." (Abstracted in the April issue of the RECORD.)

Dr. Reynolds: This paper leads me to remark that in heterophoria attention is often directed to local manifestations that are frequently only signs of a constitutional dyscrasia.

Dr. Fryer: This matter of heterophoria should be considered, as Dr. Bulson said, in reference to the correction of the hypermetropia. It is a fact that a man constantly using his eyes for near work should have in reserve at least two-thirds of his muscular power, and in giving correction by prisms or operations we must remember it. This matter of so-called partial tenotomy I insist is a failure. There is no such thing as a partial tenotomy. The tendons of the body are composed of a most unyielding tissue; unless the tendons of the eye muscles are divided entirely there is no effect. It is absolutely impossible to get a change of tension unless the whole tendon is divided, I care not what Dr. Stevens or any other man says to the contrary. There are cases I have seen in New York under Dr. Stevens' care, where twelve, fourteen or twenty so-called partial tenotomies have been done. In the west here most of us are satisfied with one or two at the outside. There are very few patients in the west who will allow more than one or two. To produce any effect from a graduated tenotomy you must separate the tendon from the ball.

Dr. Colburn: If the question of graduated tenotomy were under discussion I should take issue with the gentleman. I have had occasion to do it a few times, and have had a very decided effect, but it must be intelligently done.

Dr. Alt: Do you mean a permanent effect?

Dr. Colburn: A permanent one. It cannot, however, be done without experience. I can look over my earlier work and see where I made many errors in my attempts to do what was called and supposed to be graduated tenotomy. In fact, in every strabismus case it is of great benefit. I have never performed what is known as a full, complete tenotomy. I can get results in partial tenotomy that will give me all I have demanded for several years in my strabismus operations, by paying attention to the individual, to the tendon, to the check ligament or the capsule. I know it can be done. I have demonstrated it time and again; the effect of graduated tenotomy is a fact; it is not a fallacy and its utility is very great. Just as with the employment of weak cylinders or in the correction

of errors of refraction generally, the work must be done with care and intelligence, and it must be done in certain cases only after other means of correcting the muscular errors have been tried. But it has an effect, and it seems to me we are belittling our profession when we claim it has not and that we are throwing discredit upon the action of men who have done good service in this field of work. The case which gave rise to the paper is certainly very interesting, but it belongs to that numerous group of historical cases; the tenotomy may not have had a shadow of influence on it at the time, although it may have influenced it to some degree afterwards; the tenotomy may have been done by a man who was not competent to do it—we cannot tell that—but the fact that the patient was not better afterwards does not show that the heterophoria was not corrected to a certain degree. Then there are some cases of divergent strabismus I have seen where a complete tenotomy had been made and the eyes put in apparently good condition, and yet within a few months they returned to the old malposition. The rotation being again limited, a complete tenotomy being made with advancement, and yet in a few months the eye was back again. I recall the case of a young woman, a neurasthenic, who was using her eyes constantly for book-keeping and had nervous headaches of the megrain type. We went over her refraction and could not demonstrate more than half a degree of heterophoria, and I despaired of being able to relieve her, but I put on rest prisms and she complained no more, and it occurred to me that perhaps her position at her work had something to do with the trouble, and sure enough I put on the rest prisms and she went to work, and she is wearing them to-day with comfort.

Dr. Fryer: What I wish to insist on in regard to the so-called graduated tenotomy is this: there is the eye and here is the tendon fastened to it; according to Dr. Stevens' idea he divides the larger segment of tendon tissue, leaving two portions attached to the eye-ball fibers that are just as unyielding as the part that is separated. I say that from such an operation you may get a minimum result, but you cannot get any sufficient effect.

Dr. Colburn: Dr. Stevens does not operate that way.

Dr. Frye: Please describe the operation. That is the way he described it in his book.

Dr. Colburn: I have watched his work and followed his methods for years. He uses the annular ligament that forms the connecting

band between the superior and inferior recti as the anchoring bands. He leaves these lateral rings and cuts across.

Dr. Fryer: Then he has changed his method as originally described.

Dr. Colburn: I do not think he has been very clear. Many operators have been very deficient in their work, and I have seen some bad work and have done some myself sometimes, but I know how to do a graduated tenotomy.

Dr. Fryer: The way you described the operation now is not as Dr. Stevens originally did it.

Dr. Hickley: Some two years ago I spent two months in Dr. Stevens' office, and he described just how he did the graduated tenotomy, but standing over him I failed to see it done as he described it; it looked to me as if he cut the tendon off. In fact in some cases he would do a graduated tenotomy, so called, and on the next occasion, it seemed to me, he would cut the tendon off.

Dr. J. W. Bullard, of Pawnee City, Neb., read a paper on "Keratoconus." This paper was abstracted in the April issue of the RECORD.

Dr. Tiffany: In regard to the etiology of Keratoconus, I believe it is pretty well known that it is due almost always to interstitial keratitis, followed, first by a tissue degeneration, and then the intra-ocular pressure produces the conical condition. It is not a case of true myopia; it is irregular astigmatism. Sometimes it can be benefited by cylindrical glasses or by spherical concave glasses, but it cannot be very much helped as a rule. The operation suggested is the best, producing a flat surface, then making an iridectomy on one side.

Dr. Bulson: I am somewhat surprised to learn that conical cornea is caused by interstitial keratitis. My experience has been exceedingly limited with this class of cases; I have seen only two, one about six years ago, and the other last autumn, but I must confess that I never discovered anything that appeared to me like the existence of interstitial keratitis as I recognize it. It would seem strange to me that it should occur in such a small area, and that area in the center of the cornea. These cases appear on careful examination very like a bubble. Examining the conical cornea closely it looks like a bubble located on the anterior portion, and I cannot understand why it should not be more diffuse. The first case I observed I did absolutely nothing for. I found no means of giving any particular improvement, although

I tried some six or eight times and spent some considerable time over it. The other case was that of a healthy girl eighteen or nineteen years of age. She said she had noticed her vision failing about a year previously. Upon examination I found a typical conical cornea, a bubble-like appearance on the upper portion. There was no evidence of interstitial keratitis. No lens gave any improvement. The patients generally see fairly well for ordinary purposes—in fact the two patients could apparently read with comfort and without trouble, the main difficulty being to see at a distance, vision being reduced in one instance to 5-200ths.

Dr. Tiffany: In regard to the explanation I gave I will say that it is from my own experience. I have had hundreds of cases of interstitial keratitis, and they almost invariably terminate in conicity of the cornea. They do not have keratitis when they have conical cornea; that comes on afterwards, but it comes as a result of the interstitial keratitis.

Dr. Alt: I must confess that I also was astonished at the statement that keratoconus is the result of interstitial keratitis. There is no doubt of the possibility of the cornea becoming stretched in consequence of parenchymatous keratitis, but it so happens that but few cases that I recall had the slightest symptom or history of anything of that kind. I remember one young man with amblyopia for whom I did prescribe glasses and who developed astigmatism. With the keratoscope I was struck by a picture which reminded me forcibly of keratoconus. I told the young man I was afraid his cornea would develop keratoconus and asked him to let me see him from time to time. Within two years he developed a typical keratoconus in one eye, but I never had a keratoconatous keratitis. The other case I recall was in an elderly lady who puzzled a number of oculists in this, that she has an enormous keratoconus in each eye which is absolutely transparent. I have proposed an operation to her, but she will not consent. Of course we may have some cases in which we can get a moderate amount of sight, but a very great result I think nobody has reached. With regard to the etiology I have had occasion to examine two or three cases histologically, but I found nothing to explain the condition. In one eye there was scar tissue and a rupture of Bowman's membrane at the apex of the cone.

Dr. Bullard: So far as the cases I have seen are concerned there was absolutely no interstitial keratitis when I first saw them, but as the case progressed one could see with a lens an interstitial keratitis.

Dr. Geo. E. Bellows, of Kansas City, read a paper reporting "**A Case of Oculo-Motor Paralysis.**" (This paper will be published in the June number of the RECORD.)

Dr. Colburn: I have seen a case similar in some respects. About a year ago Prof. L. referred a gentleman to me, fearing that he had tubercular disease of the brain, as there had been a slight increase of temperature and a previous history of a cure of tuberculosis of the lungs. The man had apparently resumed perfect robust health. Then this rise of temperature, coming on with some little mental disturbance in the way of excessive nervousness, made Dr. L. very anxious, fearing he had tubercular disease of the brain. About this time the patient began to have paralysis of the muscles of the right eye. I cannot give the order in which it came. The recti muscles were paralyzed in the right eye, following that came ptosis. The left eye then became involved by a systematic rotation of paralyses, beginning with the third and going through, one after the other, nearly all the muscles involved in the paralysis. My impression was that we had a septic condition to deal with, if not diphtheria, or staphylococcus infection. I began to study the patient with reference to this. In examining the crypt of the tonsil I brought out membranes or substances that Dr. Federer examined under the microscope and pronounced staphylococcus accumulations. We then removed a portion of the tonsil, examined it, and found large cavities in which infection was taking place. After the removal of the tonsil the temperature became normal, the patient gradually became better, and the paralysis of the various muscles improved very rapidly. He had been under all sorts of anti-phlogistic treatment without a good result. Everything that could have been anticipated was done in the case, but until the tonsil was thoroughly cleared out there was no improvement. The paralysis began to get better, and the patient became practically well so far as the muscular paralysis was concerned.

Dr. Stillson: There is one point Dr. Bellows did not mention, and that is that the recovery of these cases of ocular paralyses are spontaneous in some cases, as in locomotor ataxia; there may at first be paralysis of the third nerve, followed by paralysis of accommodation and ptosis, the locomotor ataxia symptoms appearing later. The eye symptoms appear early; diplopia appears, but soon passes away, followed by paralysis of the muscles of accommodation, which after a time getting better become worse again. Reflex throat troubles will be present, such as spasmodic closure of the glottis; this will get better

and possibly pass away entirely. So we are sometimes liable to deceive ourselves when we attribute a cure of the ocular paralysis to a removal of the adenoid or tonsil, and I think it is wise for us to bear these things in mind, particularly when we have a paralysis occurring in locomotor ataxia and particularly in locomotor ataxia due to rheumatism or gout.

Dr. Barck: The most interesting points in the paper are those two just mentioned. But I cannot concur with the conclusions drawn by the author. I cannot agree that we can arrive absolutely at the conclusion that the seat of the trouble must be located in front of the chiasm. I believe that we all will be willing to admit that we cannot tell just how the fibers are running which cause the trouble. You are all aware of the fact, I suppose, that the idea which so long obtained of a semi-decussation of the fibers of the optic nerve in the chiasm is not questioned considerably. Within the last few years it has been maintained by several observers at least, that instead of a semi-decussation there is a total decussation taking place in the chiasm. So I think we had better content ourselves with stating what we do and do not know, and at present we do not know anything positive about the course of the fibers of the optic nerve at any distance or even immediately behind the eyeball itself.

Dr. Fryer: The important point seems to me in calling attention to the location of the lesion. I believe the majority of oculists will agree, notwithstanding the latter claims of these gentlemen whom Dr. Barck alludes to, that experimentations heretofore have proved a decussation. Dr. Bellows speaks of the rarity of these lesions of the nucleus. This is true, but occasionally we find a lesion on autopsy located to a single nucleus. *In the Brain*, published in London, which is the organ of the London Neurological Society, is a case reported where the lesion was confined to the left nucleus with a very peculiar combination, and the gentlemen (there were two of them) who reported the case made a very careful examination, and came to the conclusion from the symptoms, and they could exclude everything almost but this one nucleus, that the sixth nucleus was a co-ordinating one as well as presiding over the sixth nerve.

Dr. Bellows: I have just one remark to make in closing, chiefly in regard to the semi or total decussation. Dr. Barck says the general view heretofore held has been of semi-decussation, and further than that, in the arrangement of the fibers in the optic tract the decussation is such that you cannot affect one optic tract alone, you cannot affect

the fibers going to one eye. In regard to the decussation, whether semi or total, there is one case reported by S. Weir Mitchell of bi-nasal hemianopsia. On autopsy it was found that an aneurism divided the chiasm from before backwards. But if the case is correctly reported there must have been a semi-decussation, otherwise the total division must have produced total blindness; and assuming the case to have been correctly reported and assuming it to be a typical case, certainly total decussation must be excluded.

Dr. Dudley S. Reynolds read a paper on **"Astigmatism."**

Dr. Jennings: In regard to the use of a cycloplegic in estimating astigmatism, I would like to draw attention to the different cycloplegics. I have tried all of them, and lately have been using scopalomin very largely, but I have finally drifted back to homatropin, because I could not discover that there was any error of refraction which would be masked and be brought out by scopalomin and not by homatropin. Scopalomin has the same disadvantage as atropin: the patient is not able to do his accustomed work for two or three days, and sometimes four or five, and when the cycloplegic has about half lost its effect the patient naturally tries to use his eyes, producing more or less eye strain. I prefer homatropin. I would strongly urge the proper application of homatropin. The lower lid should not be drawn down and a drop of hamatropin put in, but the patient should be told to look down and a drop then put on the cornea, and as the eye rolls up the homatropin is evenly distributed over the whole surface of the cornea.

Dr. Corr: I have found mixed astigmatism to be present in about two per cent of all cases. I have always acted on the principle that static refraction cannot be responsible for astigmatism in but one meridian. If there is an astigmatism of another meridian it must be due to dynamic refraction. Now if we can wholly set aside the dynamic refraction by means of cycloplegics, we ought to do away with such astigmatism, and if so we ought to be able to resolve everything into a simple astigmatism. I have acted on that principle and have resolved quite a number of them into simple astigmatism, but I have not succeeded in reducing all. I think if I had continued the experiments I would be able to still further reduce them. If I am in error you have the privilege of correcting me. You cannot have an astigmatism in a static refraction except in one meridian.

Dr. Driver: I would like to inquire what part of the hypermetropia is corrected in Dr. Reynold's cases of compound hyper-

metropic astigmatism, and if he makes a complete correction or only partial.

Dr. Alt: I cannot quite agree with Dr. Reynolds as to the effect of the homatropin. I have not been able to get the effect, even where I used a double dose. I used Merck's, still I could not get a complete cycloplegic effect, and I used the instillations every five minutes for an hour, and in several instances I have had poor success in getting a complete effect, particularly with young people. I can scarcely agree with Dr. Jennings in his statement about scopalomin. By the careful use of the drug I have had with the ordinary dose the same effects as I would with atropin, and I certainly differ in regard to the effect of homatropin. It would be a very good thing if we could always rely upon it, but I am certain that in young people we cannot.

Dr. Driver; I wish to say that I agree with Dr. Reynolds. In young people I have found nothing so satisfactory as sulphate of atropin. I have tried the other drugs, and although I have not had a very large number of cases, I can say that we do not get the paralysis that we have a right to expect, and therefore I have discarded them and now rely wholly upon atropin, notwithstanding its disagreeable effects for four or five days. I consider it the most efficacious and most reliable.

Dr. Reynolds: In regard to homatropin, of course I do not know how the gentlemen use it, nor what particular dose is applied, nor how you determine the presence of complete cycloplegia. I found that it would not do to use sulphate of atropin with my patients and keep them away from business three or four days, which it would often do, using a one per cent. solution and applying it three times a day. Frequently it produced toxic symptoms which made it necessary to discontinue its use. When homatropin was introduced I hailed it with delight and seized upon it at once, and the experimentations which I carried on at a large clinic at the hospital, as well as in my private practice. The records kept have enabled me to satisfy myself of the usefulness of the drug. I was able to secure complete suspension of accommodation, using a solution of four grains to the ounce, two instillations a day. But the solution must be made fresh every day. I will not use to-day a solution which was made yesterday. I find it deteriorates rapidly, not in its capacity to dilate the pupil, but to produce suspension of accommodation. I determine the presence of cycloplegia by the use of the stenopaic disc, first rotating it before the eye and thus find the plus meridian, and then if the lens is required to

bring it out I bring it down to the sharpest degree of acuity of perception and make a memorandum of that on a piece of paper, putting down the meridian plus four diopters. Then I find the lens which will at right angles to the first one correct the degree of refraction, and if they differ I substract one from the other and take the smallest amount of error of refraction as representing the spherical lens and the largest the cylindrical. Then I have the patient look through that, and if the result is obtained, then of course the cycloplegia is complete. If I do not get the same result I am suspicious and send the patient back for further drops to be instilled. I do not wait forty or fifty minutes after the instillation, but only thirty minutes. Sometimes I have the patient go back a third time, but they usually succumb to one or two instillations of homatropin, and inasmuch as it produces no unpleasant symptoms I value it very highly. But the solution should be fresh, and when properly used it satisfies all requirements. I have no respect for solutions that are found on the market.

Now as to the value of Javal's ophthalmometer, Dr. Edward Jackson, of Philadelphia, maintains that sixteen per cent. of cases of total astigmatism are revealed by the ophthalmometer in its most improved form. It is a time-saving machine — it measures with approximate accuracy the different curvatures of the cornea, but the different curvatures of the cornea have very little relation to the total astigmatism of the eye, and since it is for the purpose of correcting the total refraction we must not busy ourselves with those nice little attempts at measuring curves of the surface of one of the reflecting areas, but take the whole thing. Less than a week ago two students of the college came to me complaining of violent headache; one of them said that he felt as if there was something attached to the eyeballs drawing them back in his head, and it became impossible for him to read, and if he went on the street and saw a person with a striped dress he became nauseated; he had never known a time when stripes looked perfectly perpendicular to him. I have hypermetropic astigmatism myself of one-twelfth, and yet for a long time under the action of the sulphate of atropin I was under the impression that I had only one-twentieth. Now one-twelfth is about three and one-half diopters and one-twentieth is about two diopters. With the atropin I did not have a complete suspension of accommodation, but the glasses were such a vast improvement upon nothing that I toiled on, and I have not required a spherical lens at all. I really supposed that it required $_1{}^1{}_2$ to correct my astigmatism until I made the test with homatropin.

It is not necessary to correct this wholly, nor is it necessary to wear glasses constantly. This student whom I spoke of, who could not read or study, could do without glasses for a great many things, and it may be of interest to the microscopists, that no matter what the error of refraction may be when using the microscope glasses need not be worn. The skiascopy test is exceedingly nice; it is scientific, and approximately accurate results are obtained by those who have time to work with it. Before the use of homatropin I was under the impression I had only one-twentieth, and under a complete suspension of accommodation it turned out that my astigmatism is plus one-twelfth, and I use a minus glass when I go on the street. I am past fifty-four years of age; still I cannot go out on the street and see distant objects with a plus one-twelfth glass, but I wear just half that amount; I have minus one-twenty-fourth. I know it is opposed to the teaching and dictum of our masters in the profession.

Dr. Tiffany: Do I understand you to use a minus glass for distant objects?

Dr. Reynolds: I am looking at you through a minus one-twenty-fourth.

Dr. Tiffany: Without a plus glass?

Dr. Reynolds: No plus glass at all.

Dr. Tiffany: It seems to me that it is probably more of a mixed astigmatism; that is, that he now has presbyopia and so does not need a concave glass for near objects.

Dr. Reynolds: I have no presbyopia. I would like to have you examine me.

Dr. Tiffany: I would like to ask Dr. Reynolds if he treats his patients in the same manner? When he finds a plus astigmatism, if he gives a minus glass?

Dr. Reynolds: If it is of high grade I do.

Dr. Driver: I would like to ask Dr. Reynolds this question: Say we have a case of compound hypermetropic astigmatism, does he correct the hypermetropia with the astigmatism? Say you have plus two diopters with plus one diopter cylindrical, do you correct it for your distant reading?

Dr. Reynolds: They do not generally require glasses for distance. People of course vary in that respect; some of them will require correction for the street. I recall now a case of a man who wears a plus lens, and he has ordinarily no use for the cylindrical lens, but when he

goes to read he requires a full compound lens, so that people vary in that respect.

Dr. Elliott Colburn read a paper on "**Congenital Nystagmus.**"

Dr. Tiffany: I agree with Dr. Colburn, that many of these cases are due to insufficiency of the extrinsic muscles of the eye, and that the treatment should be directed towards the correction of the existing error. I think, however, that this may be accomplished by gymnastic exercise without surgical interference. I have found that in rotary nystagmus the trouble usually lies in the oblique muscles, in the horizontal nystagmus the lateral muscles are affected, and the vertical variety is due to some insufficiency of the superior or inferior recti.

Dr. W. E. Driver, of Norfolk, Va., read a paper on "**A General Consideration of the Etiology and Treatment of Choroiditis Suppurative.**"

Dr. Corr: The puzzle which presented itself to Dr. Driver is one which also presented itself to me. When I first began the study of ophthalmology I was struck with the fact that the books and teachers said that almost all forms of choroiditis were of syphilitic origin. In several papers which I have read before different associations I have maintained that the trouble may arise irrespective of the existence of syphilis, and these cases will get well without anti-syphilitic treatment. I do not know what its origin is, probably rheumatic in many cases.

Dr. Tiffany: I agree with what Dr. Corr has said, that choroiditis is not always due to syphilis. Consanguinity may, in many cases, account for it. Why this should be I do not know; the offspring of cousins, in my observation; almost always have choroiditis.

Dr. Suker: As regards every case of choroiditis being syphilitic I oppose it I have had occasion to see in a large clinic many cases of choroiditis of syphilitic origin, but I have also seen many cases where there was no trace of syphilis.

Dr. Driver; I have not much to say in closing. My idea in bringing this subject up is because I think a large number of patients are treated on the theory that they have some remote form of syphilis, and we are too much in the habit of putting our patients on anti-syphilitic treatment; it does not matter who the patient is, if he has a choroiditis we adopt as a routine treatment anti-syphilitic treatment; in other words we prescribe mercury and iodide of potash. I think a differential diagnosis should be made in these cases, as it is such a grave thing, such a serious thing, to pronounce a case syphilitic. I think we ought to be more particular before doing so; we should

diagnosticate our case before we prescribe. That was my object in presenting the paper. We are usually taught that choroiditis is due to syphilis. I was for a time resident physician in an eye and ear hospital in Baltimore, in connection with which there was a large clinic. I noticed that while in the syphilitic cases we could find syphilitic iritis and other manifestations of syphilis, it was seldom we saw a choroidal lesion.

Dr. George Knapp, of Vincennes, Ind., read a paper on **"Ophthalmia Nodoso."**

Dr. Colburn: During the last year a member of the Chicago Ophthalmological Society reported a case similar to Dr. Knapp's. Last year a case occurred in the clinic of one of my neighbors, in which we were able to demonstrate the hair on the conjunctiva before it had penetrated very deeply; it was removed. A hair was also found penetrating through the cornea partially into the anterior chamber, causing a most serious and provoking irritation. Its removal was effected by passing the keratome through the cornea, bringing it up under the hair, holding it firmly against the cornea, while a slight incision was made beside it.

Dr. W. L. Dayton, of Lincoln, Neb., read a paper on **"Hysteria in Ophthalmology."**

Dr. Corr: Some time ago I saw a lady who for three weeks had been unable to have her eyes unbandaged and said she could not see. On going into her house I found every avenue of light closed up, her eyes bandaged and a bandana handkerchief lying over her face. Inquiring into the circumstances, they told me I could not examine here, as no light could be let in. After talking to her gently about her disease I gradually removed the handkerchief, and in a short time she allowed me to take the bandage from her eyes. A little cocain was dropped into her eyes, and after gaining her confidence she opened her eyes widely. I told a friend of the patient, the manager of a religious sect, that the eye trouble was purely mental. She immediately called the members of the sect together and began to pray for the recovery of the patient. The result was most satisfactory as regards the cure.

Dr. Colburn: About a year ago a gentleman was referred to me with corticollis of the most distressing kind; he was a robust, fine looking man physically, a perfect athlete. Having lived for years on the plains, he was accustomed to all sorts of outdoor exercises, brocho riding and bucking and everything which a man of courage would attempt. About a year before he came to me he had suffered for a

time with persistent pain in the back of the head and neck, accompanied by frontal headache. These symptoms were shortly followed by contractions of the left trapezius muscle, which finally became permanent. The surgeons whom he consulted, thinking the difficulty was in the muscles of the right mastoid, made a section of them, without relief of the symptoms. Soon after this he was confined to the house with photophobia, which I thought to be hysterical in character. Having gained the confidence of the patient, I began the treatment of his case by correcting the astigmatism which I found present. Very shortly the corticollis, which he had had for three years, gradually yielded and he was able to walk with his head straight. With the exception of a slight spasm of the trapezius on becoming excited, he never relapses into his old condition.

Following papers were also read:

"Hemorrhagic Glaucoma," by Dr. Adolph Alt.

"Report of a Case of Double Mastoid Disease," by Dr. J. O. Stillson, of Indianopolis, Ind.

"Adenoid Vegetations," by Dr. Ellet Orrin Sisson.

"A Case of Carcinoma of the Lachrymal Glands," by Dr. J. Ellis Jennings.

"An Improved Skiascope," by Dr. J. Ellis Jennings.

"Advanced Method in Teaching the Deaf," by Dr. Goldstein.

"Hypertrophic Rhinitis," by Dr. W. T. Grove, of Eureka, Kansas.

"Reports on Cases of Ophthalmia Neonatorum," by Dr. F. T. Reyling.

"Experiments on the Eustachian Tubes by Means of the Tongue Thrust into the Naso-pharynx," by Dr. Stillson, of Seattle, Wash.

"Retarded Closure of the Wound after Cataract Extraction," by Dr. Charles Barck, of St. Louis.

"The Function of the Stapedius and Tensor Tympani Muscles," by Dr. Thomas F. Rumbold.

"The Value of Weak Lenses in Correcting Errors of Refraction," by Albert E. Bulson, Jr., M. D., of Fort Wayne, Ind.

"The Technique of Cataract Extraction," by B. E. Fryer, M. D., of Kansas City, Mo.

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EDITORIALS.

CONCERNING THE SECTIONS OF THE AMERICAN MEDICAL ASSOCIATION AND OTHER SOCIETY MEETINGS.

While the value of local scientific societies, medical and otherwise, is unquestioned it would seem that the recent crop of special societies is but a fungous outgrowth that can only tend to detract from the value of or diminish the attendance on well established national gatherings.

Progressive physicians, particularly the specialists, make it their practice to attend large conventions, such as the American Medical Association and its Section meetings, and the several societies which form the Congress of Physicians and Surgeons, in which they may be interested. In the Section on Ophthalmology of the American Medical Association and in the American Ophthalmological Society the greater lights in American Ophthalmology are usually found. Men meet on the level and make valued friendships and acquaintances besides receiving a mental pabulum of the highest class. The papers generally are of ability for the reason, at least in the several meetings at which the writer has assisted, that many papers have been written by special request and the others have been sifted through the sieve of selection.

Well meaning but abortive attempts have been made to organize sub-divisions of these general societies or rival associations on the specious plea that our country is so large that a Southern Section or a Midland, Western or Valley Society is needed. Railroad facilities are now so good that a few hours travel suffices to bring our Western,

Southern or Eastern brethren together. The busy ophthalmologist usually attends his state, county and city medical societies also and generally has many other demands upon his time. As a rule, he does not attend these meetings for vacation purposes but for work in the line of his professional duties; he cannot afford to throw away his time, his brains and his labor of preparation or attendance upon poorly attended societies.

A meeting may have been particularly well advertised, the published program may contain the names of prominent men from the North, East, South and West and from Foreign Countries and yet eventuate in an attendance of a half dozen or less. The score or so of men working in the same specialty in the convention city may not attend and the corporal's guard that comes to order at the sound of the president's gavel must indeed be considered but a sorry reward for the labors of the organizers. Papers are read by title and the meeting adjourns with practically no discussion. "And the mountain labored and brought forth a mouse." H. V. W.

MEDICAL SOCIETY PROGRAMS.

The practice of sending in titles to Medical meetings without expectation of attendance simply for the advertisement connected with the association of the author's name on the program and the eventual publication of the article with this connection is radically wrong, even though the paper may be written and forwarded to be "read by title." The free discussion elicited by the presentation of one new idea gives life to a meeting and is particularly desirable at national gatherings. The criticisms brought forth are often of more value than the paper itself.

Theses read by title may be eventually printed but even if of value the life has gone out of them as the writer can not have profited by critical discussion which may lead him to change or modify his views.

Programs should be sifted of such dead wood by the officers of the societies. Men who have practiced such a policy should consider that their efforts are largely wasted and reserve their papers tor meetings which they may be able to attend in person. H. V. W.

THE USE OF THE TERM HETEROPHORIA.

There seems to be a prevalent misconception of the term heterophoria, the word being often used as synonymous with insufficiency. The word heterophoria is derived from the Greek and means a leaning

to one side. The terms esophoria, exophoria and hyperphoria simply designate the direction of the leaning.

Dr. Stevens has been a strong opponent of those who advocate insufficiency of the muscles as the cause for turning of the visual axes away from their normal positions in binocular single vision. When he proposed the terms esophoria, exophoria and hyperphoria, he supplied terms that designate the direction of the ocular rotation, not on account of muscular weakness, but because the globe was not properly placed in position at the time of its formation. When all the muscles acting upon the globe are at rest, the globe tends to swing into the position which nature ordained for it, but owing to the law of binocular single vision, it is turned from the direction of its natural tendency until the visual axes converge at a given point. Stevens has never advocated that the muscles doing this turning are weak, or insufficient. Before Stevens proposed his heterophoric terms we were in the habit of speaking of insufficiency of the externi, interni, etc. His terms being shorter and more convenient, we began altering our nomenclature by saying in a given case, insufficiency of the interni, eyes turn out, hence this is a case of exophoria. Some of us never adopted Stevens' theory, but did adopt his nomenclature. So today we find some of our writers speaking of exophoria, and, in the same sentence, in order to avoid repeating the term, designating the trouble insufficiency of the interni. We think, in justice to Dr. Stevens, that his terms defining the different kinds of heterophoria should not be used unless his theory is also accepted, and the presumption that heterophoria is due to insufficiency, dropped.

G. M. B.

THE INCREASE OF ERRORS OF REFRACTION.

Within the past thirty years, the remarkable increase of refractive disorders, has forced the attention of the Profession to consider and investigate the conditions which may be responsible for this increase.

That a much larger proportion of our youth are afflicted now than in former times, must reasonably be admitted. That we have newer, more accurate methods of determining these conditions and therefore find them, when in former years they escaped our examination, will hardly satisfy the careful student. Modern libraries, so constantly filled with eager readers, the ease with which books and especially modern novels, may be secured by all, and our present Public School system, are probably the chief factors to be considered. Undoubtedly the most prolific of these causes, will be found in the methods of

instruction followed in our schools, commencing with the Kindergarten and ending with the University. The constant and prolonged fixation and convergence of the eyes on finely printed books, must be the chief element in the development of astigmatism and the increase of myopia. The Public Schools have been so filled with material in recent years, that many of the younger oculists, under the guise of charity, have used them for their own professional and financial advancement, while the ambitious optician, not to be outdone, seeks authority for the admission of his blank prescription form to every school. Under these circumstances the examination is a farce, often an abuse.

In some instances, the already over-worked teachers, have been required to exercise the simplest tests, but errors were so frequent, that this added burden was removed. And yet, the necessity for the early detection of these errors and their correction is a real one, and the best means to secure this result should be determined. A child is not at present admitted to school without a certificate of vaccination. In the interest of the child, should not a certificate of good or corrected vision be required as well? Every year applicants are rejected by the United States Military and Naval Schools for refractive errors, in anticipation of their increase, and while this is a reproach to us, it proves the necessity for early and increased care.

It is to be hoped that this important subject will no longer be neglected, and that some proper remedy will be found. The most complete and thorough means, we would suggest, would be the employment of a competent oculist, by the State, with income sufficient to dispense with practice, whose only duty would be to protect our children's eyes. W. E. H.

We are indebted to Dr. G. L. King of Alliance, Ohio, for the following extract from the law passed in Ohio relating to the prescribing of glasses by opticians.

RESOLVED: That the act of prescribing or adjusting glasses in uncomplicated cases of visual defects shall not be held as practicing medicine within the meaning of the law, but that the act of prescribing glasses or adjusting the same without the order of a physician in any case in which the vision cannot be brought up to the normal and in which, in addition to visual defects, there exists any inflammatory condition, organic change or disease of either the constituent or auxiliary substances of the eye, *shall* be held as practicing medicine within the meaning of this Law.

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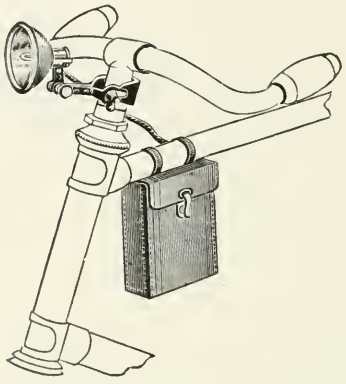

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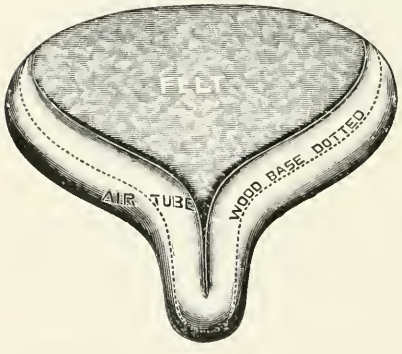

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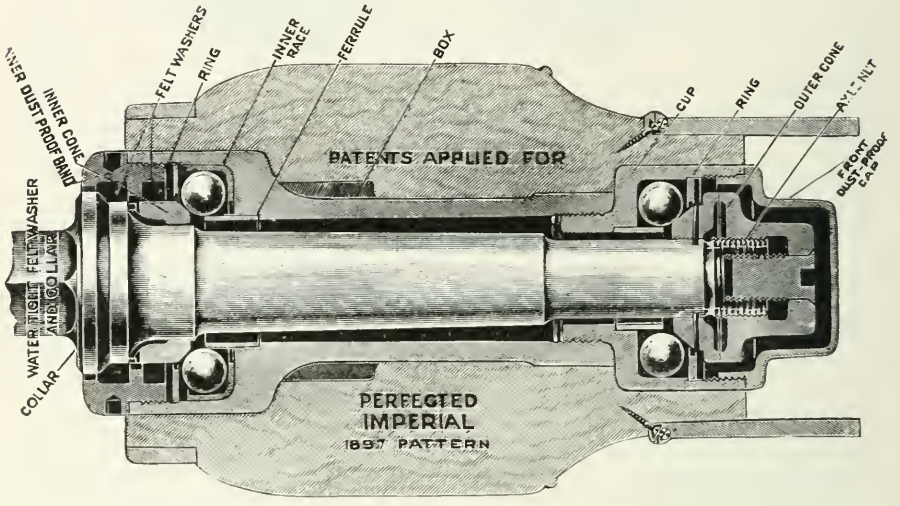

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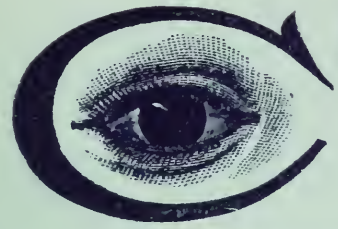

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